ORDER NO. VRD-8104-533

Service Manual

Video Cassette Recorder

Panasonic VHS

NV-2000 -E -B -EG -EV

Vol. 1

Summary
Operating Instructions

SPECIFICATIONS

Power Source: 110, 120, 220, 240V AC 50/60Hz
Power Consumption: Approx. 38 watts
Television System: CCIR: 625 lines, 50 fields
PAL colour signal
(NV-2000-E, -B, -EG, -EV)
D.D.R-SECAM signal (NV-2000-EG)
Video Recording System: 2 rotary heads, helical scanning system
Luminance: FM azimuth recording
Colour signal: converted subscarrier phase shift recording
Audio Track: 1 track
Tape Format: Tape width 12.7mm high density tape
Tape Speed: 23.39mm/s
Record/Playback Time: 240 min. with NV-E240
FF/REW Time: Less than 7.5 min. with NV-E240
Heads: Video: 2 rotary heads
Audio/Control: 1 stationary head
Erase: 1 full track erase
Input Level: Video: VIDEO IN connector (BNC) 1.0Vp-p, 75Ω unbalanced
Audio: LINE IN jack −20dB, 100kΩ unbalanced
Output Level: Video: VIDEO OUT connector (BNC) 1.0Vp-p, 75Ω unbalanced
Audio: LINE OUT jack −6dB, 600Ω unbalanced
RF Modulated:
NV-2000-E, -B, -EG, -EV,
UHF channel 36 (±4)
75Ω unbalanced
Weight: 10.0kg
Dimensions: 480(W) × 136(H) × 365(D) mm
Accessory Supplied: 1 pc. DIN-DIN coaxial cable, VJA0130
Optional Accessories: Video cassette tape:
NV-E240 Approx. 344m, 240 min.
NV-E180 Approx. 258m, 180 min.
NV-E120 Approx. 174m, 120 min.
NV-E60 Approx. 88m, 60 min.
Video Camera, WV-2600E, WV-3000E, WV-3200E

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic®

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

INTRODUCTION

This service manual contains technical information which will allows service technicians to understand and service the Panasonic NV-2000 PAL VHS Video Tape Recorder
The NV-2000 has many special features as shown below.
These features in addition to the basic PAL VHS Format make the unit an ideal one for your culture and entertainment.

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IMPORTANT

"Unauthorized recording of copyrighted television programmes, films, video tapes and other materials may infringe on the rights of copyright owners and be contrary to copyright laws."

WARNING

TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

FEATURES

1. **4 hours recording/playback possible with new tape NV-E240**
   New system for high-density recording allows up to 4 hours recording on a single NV-E240 tape.
2. **Quick/Slow Button**
   You can locate a desired segment with ease as you view the playback picture at fast-speed and view the slow-motion picture during still-frame playback by pressing this button.
3. **Timer recording**
   The built-in timer allows you to record a TV programme up to 14 days ahead. What's more, you can even automatically record every-day programmes that are broadcast in the same time and channel over the full-length of a cassette.
   All you have to do is to set the timer correctly, and you can go away without missing those "must-see" programmes.
4. **Recording one programme while watching another**
   The built-in tuner allows to record a programme that you don't want to miss while watching another programme.
5. **Fine editing function**
   The unit eliminates the editing problem common to ordinary VTRs. When a recording is paused, the tape will be automatically rewound slightly to record this cutting to a minimum any interference. Continuity between cuts is smooth.
6. **Soft-touch button system**
   Due to the use of a microcomputer, the buttons of the unit may be operated with a very light touch.
7. **Direct-drive video head**
   A quartzlocked direct-drive video head cylinder ensures picture quality and stability.

PRECAUTIONS

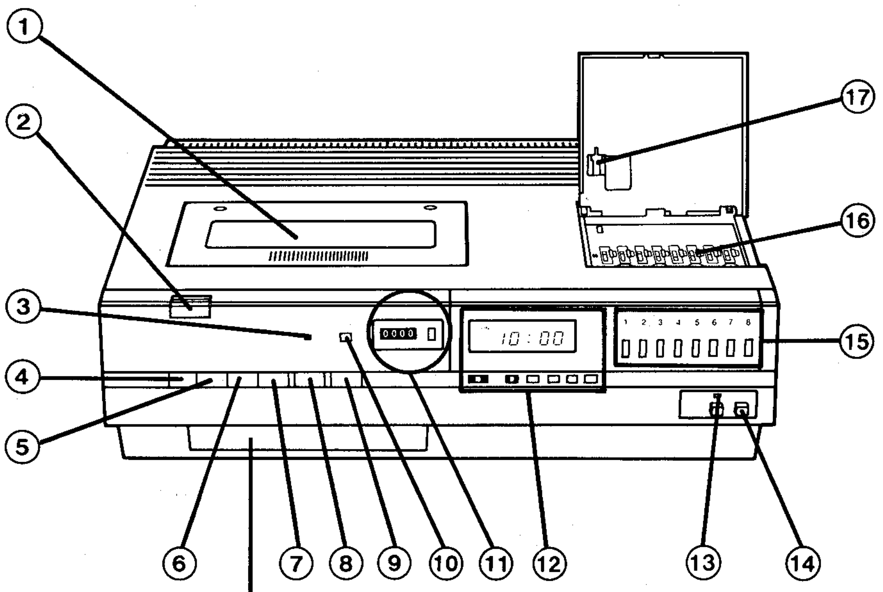
- Before trying to operate the unit, make sure that Timer Rec Switch is OFF.
- Take special care not to use or store the unit for a long period of time in direct sunlight, in excessively hot, cold, damp or dusty places, or places subject to heavy vibrations.
- If the unit is suddenly moved from a cold place to a warm place, moisture that can cause damage to both the tape and the unit may form inside the unit. Avoid such changes in temperature, if possible. When excessive moisture is present inside the unit, the Moisture Indicator Lamp will light up and the unit shuts off automatically to prevent damage to the tape or the video recording mechanism.
- Avoid operating or storing the unit and the video cassette near appliances generating strong magnetic fields (large motors, power transformers, or large audio speakers).
- Do not block or cover the ventilation slots on top, back and bottom of the unit. Especially avoid soft materials such as cloth or paper.
- Use the unit in horizontal position and do not place anything heavy on the unit.
- Keep the unit away from flower vases, tub, sink, etc. If liquids should be spilled into the unit, serious damage will be caused. If you spill any liquid into the unit consult qualified service personnel.
- Do not insert fingers or any other objects into the cassette holder.
- Do not spray any cleaner or wax directly on the unit or use forced air to remove dust.

FOR YOUR SAFETY

- **VOLTAGE SELECTOR SETTING.**
  The power cord of this unit must be disconnected from mains before the voltage selector setting is changed.

CONTROLS AND COMPONENTS

TOP and FRONT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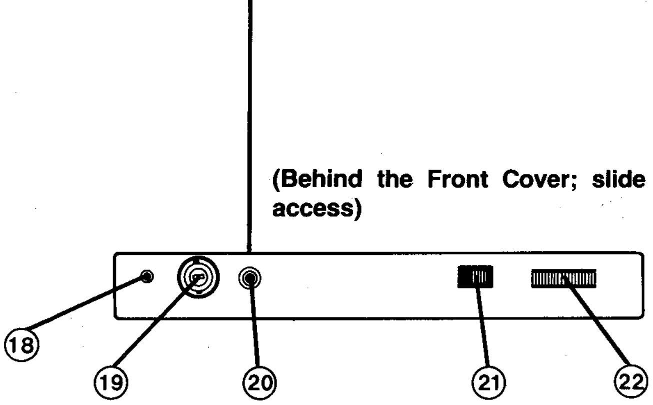
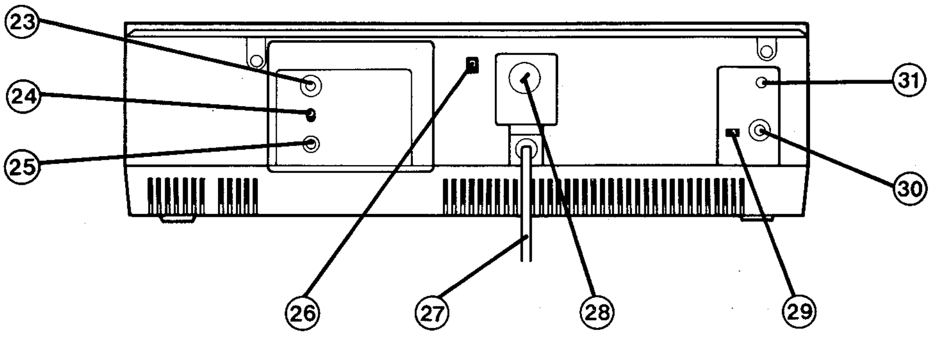
(Behind the Front Cover; slide lid to the right for access)



REAR



FUNCTION OF CONTROLS AND COMPONENTS

TOP and FRONT

① Cassette Holder
For insertion of a video cassette.
Keep closed except for inserting or removing cassette.

② Eject Key
Press to raise the cassette holder.

③ Moisture Indicator Lamp
Lights up if excessive moisture condenses inside the unit. The unit WILL NOT operate while this lamp is on. If this happens, leave the unit ON, and let it remain at room temperature until the lamp goes off. The time required varies with the environment, but the moisture will disappear within a few hours.

④ Rewind Button
Push to rewind the tape.

⑤ Stop Button
Push to stop the tape.
This button must be pushed before "Eject".

⑥ Fast Forward Button
Push to fast-forward wind the tape.

⑦ Play Button
Push to play back a recorded tape.

⑧ Record Button
Push together with Play Button to start recording.

⑨ Pause Button
Push to temporarily stop the tape during recording in order to avoid recording unwanted material, or to view a still-frame picture during playback. Push again to release the tape from pause.

⑩ Quick/Slow Button
If depressed during playback the picture will be shown at approximately 5 times normal speed, or if depressed in the pause mode a slow-motion picture can be viewed at approximately 1/5 of normal speed.

⑪ Tape Counter/Reset Button
The counter indicates how far the tape has moved. It is very useful for locating a desired part of the tape. Push the reset button to reset the tape counter to "0000".

⑫ Digital Clock/Timer Controls
The digital clock displays the time. The timer controls are used to set the clock for the present time and to programme start and stop times for timer recording.

⑬ Timer Rec Switch/Indicator Lamp
Push after programming the unit for timer recording. When this switch is on, you CANNOT operate the unit manually but you can eject the tape.

⑭ VTR Switch
Turns the recorder on and off.
- The Digital Clock will operate regardless of the position of this switch.

⑮ Channel Selector Buttons/Indicator Lamps
Push the desired channel selector buttons to select the channel you wish to view or record.

⑯ Tuning Controls
Used to tune to any broadcast channel in your area.

⑰ Automatic-Frequency-Control Switch
To ensure optimum tuning the automatic frequency control switch should be left in the "ON" position.
When the cover of the tuning controls is opened the AFC is automatically OFF.

(Behind the Front Cover)

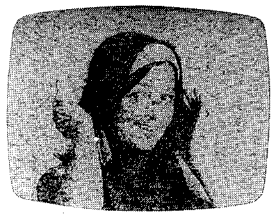
⑱ Camera Remote Pause Jack
For connection of a remote-control cable from a video camera.

⑲ Video Input Connector
For connection of a video camera or other video input signal to be recorded.

⑳ Audio Input Jack
For connection of a video camera or other audio input signal to be recorded.

㉑ Input Signal Selector
Used to select between the two incoming signals from which recordings can be made.
1) In the "CAMERA" position, the signal which is connected to the Video Input Connector and the Audio Input Jack will be recorded.
2) In the "TUNER" position, the signal from the built-in tuner will be recorded.

㉒ Tracking Control


Noisy Picture

Should tapes recorded on another machine show noise or a streaky playback picture rotate this control slowly in either direction until the picture is clear. The control should normally be kept in the "FIX" position.

REAR

㉓ RF Output Connector
For connection to the antenna terminal (COAXIAL type) of TV with the DIN-DIN Coaxial Cable supplied with the unit.

㉔ RF Signal Level Switch
Used to attenuate the reception of the VHF and/or UHF antenna signals.
If the reception is normal, set to "HIGH". If the signal strength is high and the stripped pattern appears at the top of the picture on TV, set to "LOW".

㉕ RF Input Connector
For connection with the external aerial.

㉖ RF Converter Channel Selector
The built-in RF converter allows playback of video tapes on a standard TV receiver. Set this selector to a channel that is not used in your area.

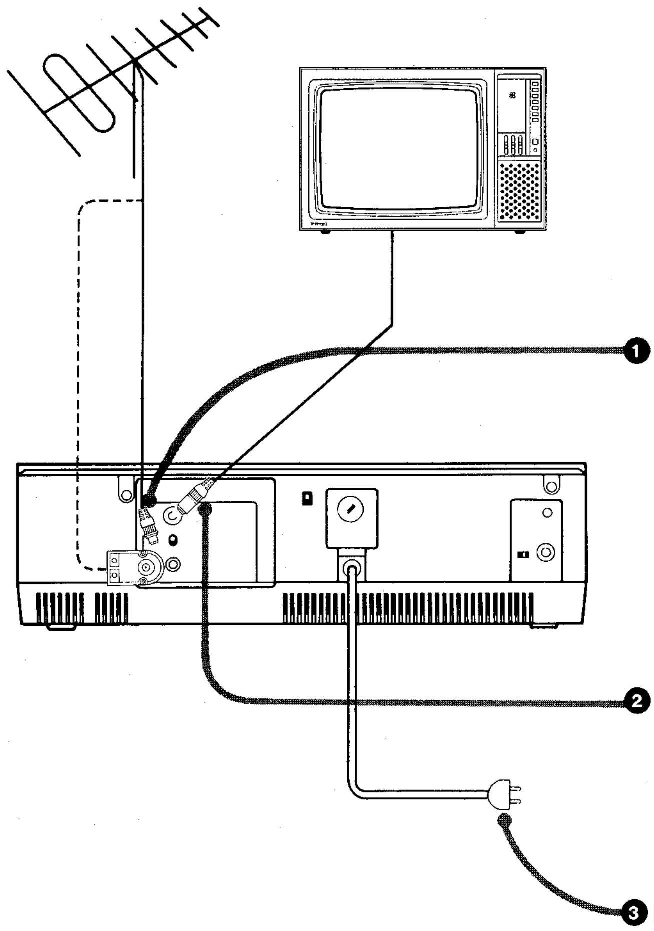
㉗ AC Power Cord

㉘ Voltage Selector
Ensure that the selector is set at the same indication as the local mains voltage before plugging in the unit.
Voltage indication: NV-2000-E, -B, -EG, -EV:
110, 120, 220, 240 V AC
NV-2000-E, -EG, and -EV are preset to 220 V at the factory.
NV-2000-B is preset to 240 V at the factory.
- VTR must be off and the Power Cord disconnected from mains prior to changing the voltage setting.

㉙ Colour Mode/Test Signal Switch
This switch has the following two functions:
(1) to tune the TV to the RF output channel and (2) to stabilize the colour image during recording or playback.
The switch should normally be set to the "AUTO" position.
To tune the television to the RF output channel:
Move this switch to "TEST". The tuning procedure for the playback channel on the TV.
To stabilize the colour image:
Move this switch to "COLOUR" to make a stable colour recording in a place where the supplied current is extremely low.
For playback, this switch must be in "COLOUR".

㉚ Video Output Connector
㉛ Audio Output Jack
For connection to a TV monitor or another Video Cassette Recorder. Not used with an ordinary TV.

INSTALLATION



❶ Connect the external aerial to the RF Input Connector.

❷ Connect your TV to with the RF Output Connector with the supplied DIN-DIN Coaxial Cable.

❸ Plug in the unit.

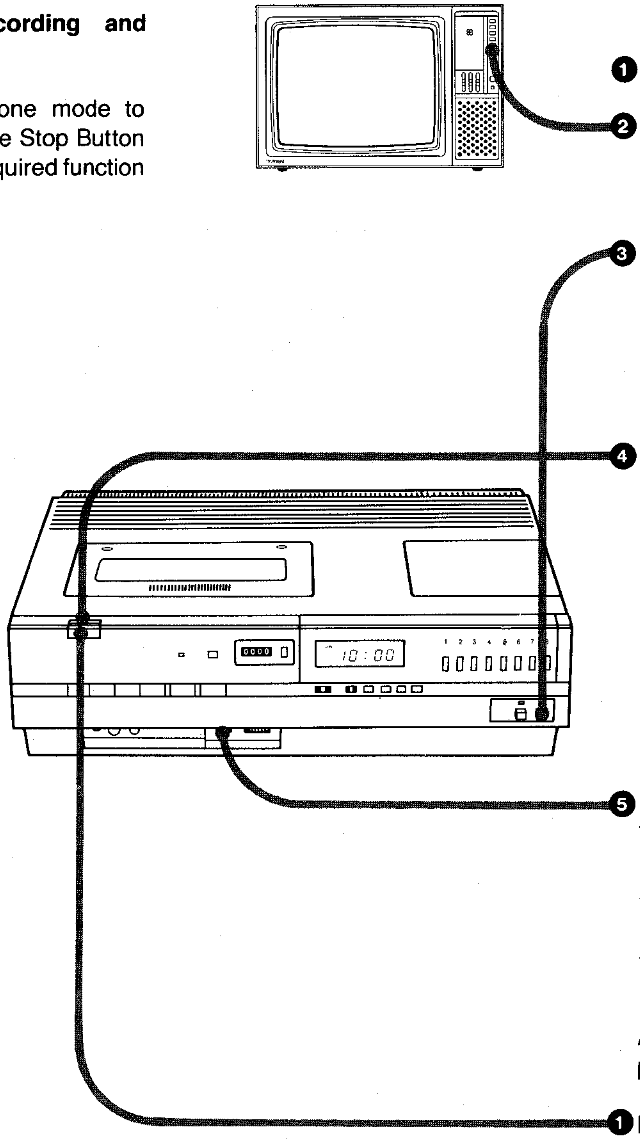
Note:

Before plugging in the unit, ensure that the Voltage Selector is set to the same voltage as your local power supply.

BASIC OPERATION

To prepare for recording and playback

When changing from one mode to another, first depress the Stop Button and then depress the required function button.



❶ Turn **TV** ON.

❷ Select the **RF OUTPUT CHANNEL** on the TV.

❸ Turn **RECORDER** ON.

❹ Press **EJECT Key**, insert **VIDEO CASSETTE** into Cassette Holder and press this down until it locks in position.

❺ Set **INPUT SIGNAL SELECTOR** to TUNER.
In case of camera recording, set this selector to CAMERA.
It is not necessary to switch this selector for playback.

After you finish recording and playback

❶ Press **EJECT Key**, remove **VIDEO CASSETTE** from Cassette Holder and press this down until it locks in position.

Make a habit of rewinding the tape by pushing Rewind Button before "Eject". This will prevent the tape from being damaged.

- ●Do not press this key while the unit is in operation. Be sure to push Stop Button and wait for two or three seconds until the tape is retracted into the cassette before "Eject".
- ●It may sometimes be impossible to take out the tape at the leader tape position either at the end or beginning of the cassette. At times like these, set the tape to fast forward (when the leader tape is at the beginning) or rewind (when the leader tape is at the end) for a few seconds, depress Stop Button to stop the tape movement, and then take out the cassette by depressing Eject Key.

❷ Turn **RECORDER** and **TV** OFF.

- ●Do not leave a cassette in the unit when not in use.
- ●Do not leave the cassette holder in the upright position when the unit is not in use to minimize dust accumulation, etc.

To watch TV normally

❶ Turn **RECORDER** OFF.

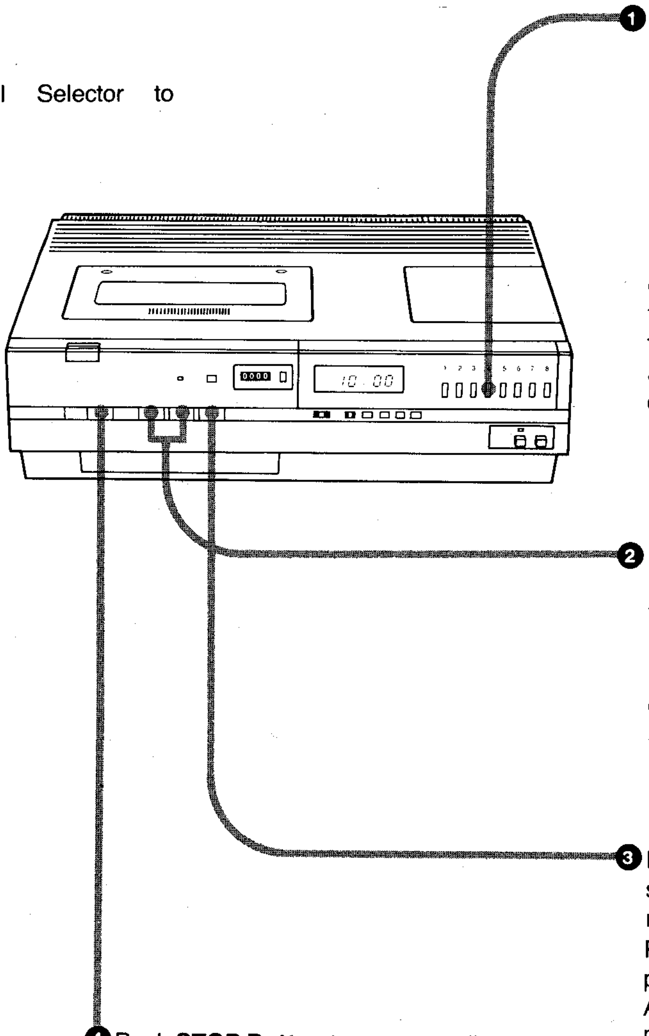
❷ Select a desired channel on TV.

Don't remove the AC power cord from the mains supply as it is necessary for the recorder to be plugged in to view TV programmes.

RECORDING

Prepare for recording as follows:

- Turn TV on and select the RF output channel.
- Turn the unit on.
- Insert a cassette.
- Set Input Signal Selector to "TUNER".



❶ Select a channel to be recorded and confirm proper reception on TV.
Adjust fine tuning on the unit or your TV if necessary: when a channel does not provide satisfactory reception . . .
Check the picture quality of each channel by pushing the Channel Selector Buttons on the unit. If the picture is not satisfactory in any of channels, adjust RF output channel by fine tuning control on TV. If just one or two channels are unsatisfactory, adjust by turning Fine Tuning Controls on the unit.

❷ Push **RECORD Button** together with **PLAY Button** to start recording.
Your TV does not have to be on to make a recording because the unit will record a TV programme without the aid of your TV. Its use is for confirming reception or monitoring.

❸ Push **PAUSE Button** to temporarily stop the tape if you wish to avoid recording unwanted material.
Push again to release the tape from pause.
Always use PAUSE Button to obtain proper recording continuity, but don't pause for more than 6 minutes. If the pause mode continues for more than 6 minutes, the unit will be automatically released from the pause and stop in order to protect the tape and the video heads.

To obtain proper continuity when taping from the stop mode or when STOP Button has been pushed accidentally:

1. Play back the last part of the already recorded material in order to confirm its end point, and then push PAUSE Button.
2. Push RECORD Button. (The unit is still in the pause mode.)
3. Push PAUSE Button to start recording.

- When a camera is being used, release PAUSE Button or depress the camera's start/stop switch twice.

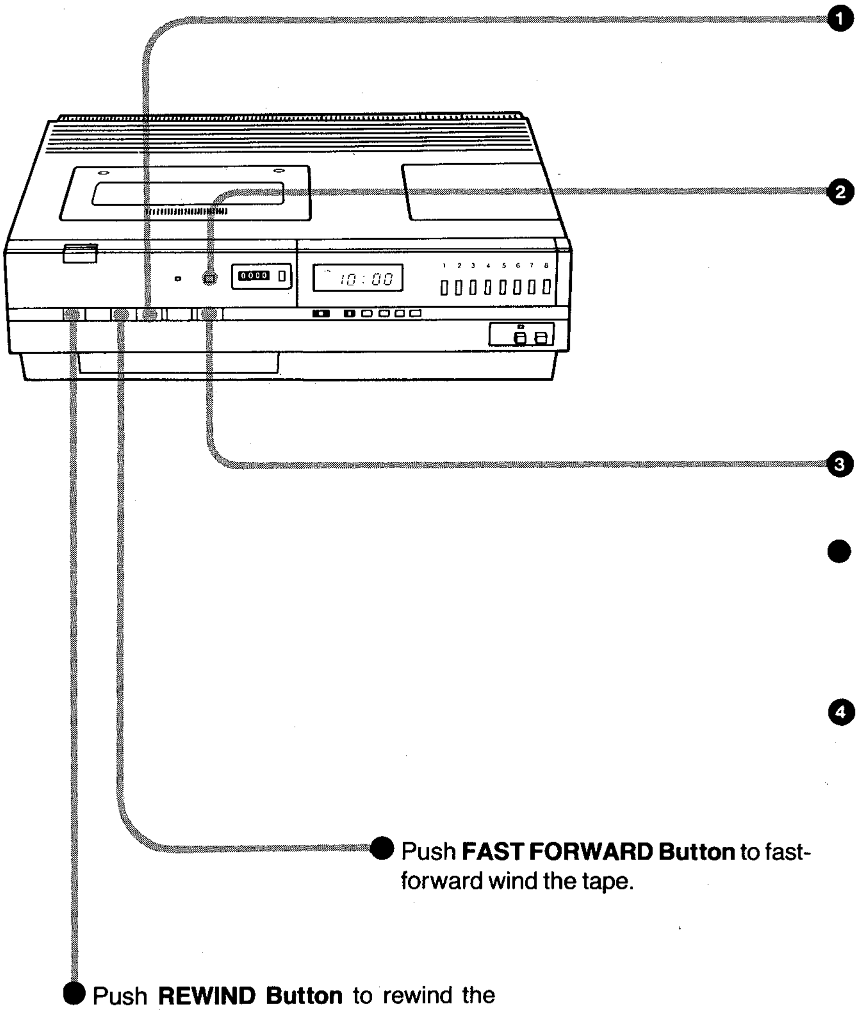
❹ Push **STOP Button** to stop recording.

RECORDING ONE TV PROGRAMME WHILE WATCHING ANOTHER

Select a desired channel on your TV when you wish to view another channel during recording.

PLAYBACK

Prepare for playback as follows:
- Turn TV on and select the RF output channel.
- Turn the unit on.
- Insert a cassette.



❶ Push **PLAY Button**.
Adjust **TRACKING Control** on the unit or fine-tune your TV if necessary. See page 9 ㉒.

❷ During playback depress **QUICK/SLOW Button** to view the playback picture at approximately 5 times normal speed.

❸ Push **PAUSE Button** to view a still-frame picture.

● During pause depress **QUICK/SLOW Button** to view a slow-motion picture at approximately 1/5 of normal playback speed.

❹ Push **PAUSE Button** again to release the tape from pause.

● Push **FAST FORWARD Button** to fast-forward wind the tape.

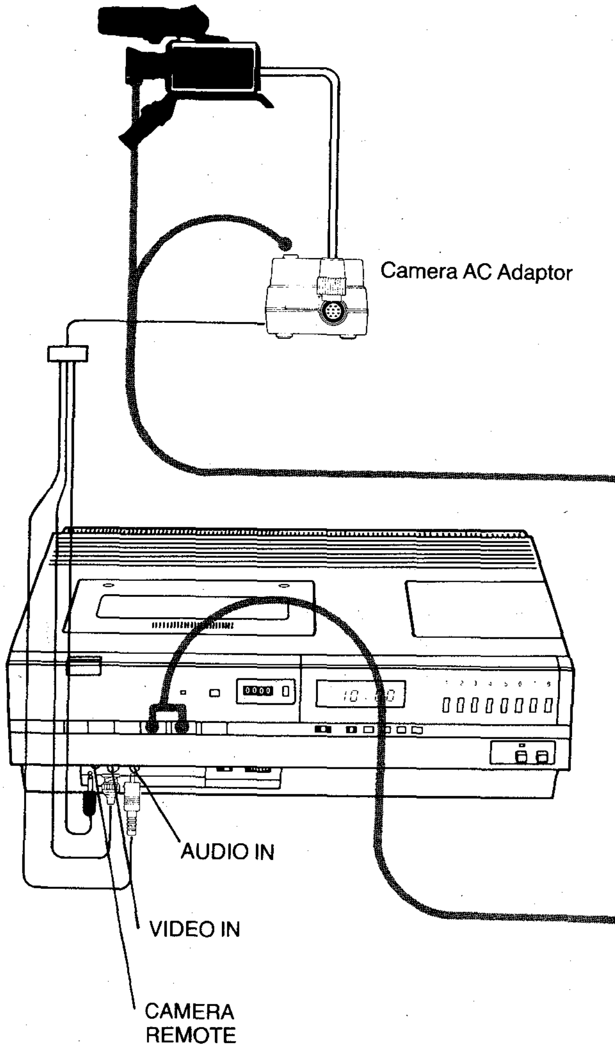
● Push **REWIND Button** to rewind the tape.

❺ Push **STOP Button** to stop playback.

- Slight distortions can appear on TV during QUICK/SLOW and STILL-FRAME playback, but this is normal.
- If you leave the unit in the pause mode for more than 6 minutes, it will automatically stop.
- Audio will not be heard during QUICK/SLOW and STILL-FRAME playback.

CAMERA RECORDING

The unit may be used with an optional video camera. The connection diagram is shown, but for best results, please refer to the operating instructions of the camera you are using.



Prepare for camera recording as follows:

- Turn TV on and select the RF output channel.
- Turn the unit on.
- Insert a cassette.
- **Set Input Signal Selector to "CAMERA".**

① Turn the **Camera AC Adaptor** on and make necessary adjustments on the camera.
Refer to the operating instructions of the camera you are using.

② Push **RECORD Button** together with **PLAY Button**, and the unit will go into the standby mode.

③ Press the camera's start/stop switch to start recording.

To avoid recording unwanted material:
Depress the start/stop switch of the camera, and the tape will stop temporarily.
To resume recording, depress the camera's start/stop switch again. (To resume recording from the pause mode that is caused by the unit's pause button, release the pause button or depress the camera's start/stop switch twice.)

However, if the pause mode continues for more than 6 minutes, the unit will release automatically and stop in order to protect the tape and the video heads.

④ Push **STOP Button** to stop recording.

- When a camera is being used, the tape will not travel if the start/stop switch is pushed repeatedly within 1.5 seconds in order to protect both the tape and the tape transport system inside the unit. Push it a period of time exceeding about 2 seconds.
- The antenna connection may remain connected when using a camera.

ORDER NO. VRD-8104-533

Service Manual

Video Cassette Recorder

Panasonic VHS

NV-2000 -E -B -EG -EV

Vol. 2

Mechanical Adjustment Procedures

Electrical Adjustment Procedures

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NV-E180 Approx. 258m, 180 min.
NV-E120 Approx. 174m, 120 min.
NV-E60 Approx. 88m, 60 min.
Video Camera, WV-2600E, WV-3000E, WV-3200E

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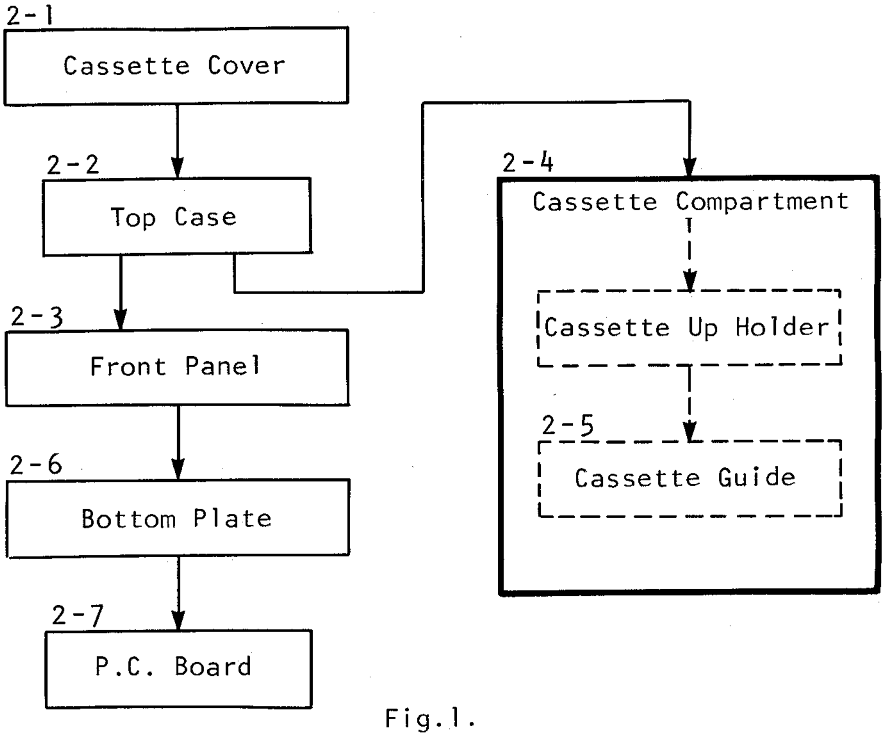
MECHANICAL ADJUSTMENT PROCEDURES

DISASSEMBLY OF CABINET PARTS

1. DISASSEMBLY FLOWCHART

This flowchart indicates disassembly steps of the cabinet parts and the P.C.Boards in order to find the items necessary for servicing.
When reassembling, perform the steps in the reverse order.

Notes:
1. When removing the Front Panel, work with care not for breaking the locking portion of the panel.
2. The adjustment is required when the Cassette Guide was replaced.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Top Case
2-3
Front Panel
2-6
Bottom Plate
2-7
P.C. Board
2-4
Cassette Compartment
Cassette Up Holder
2-5
Cassette Guide

Fig.1.

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2. DETAILED DISASSEMBLY METHOD

2-1. Removal of the Cassette Cover
Remove 2 screws (A). Then lift the cassette cover.

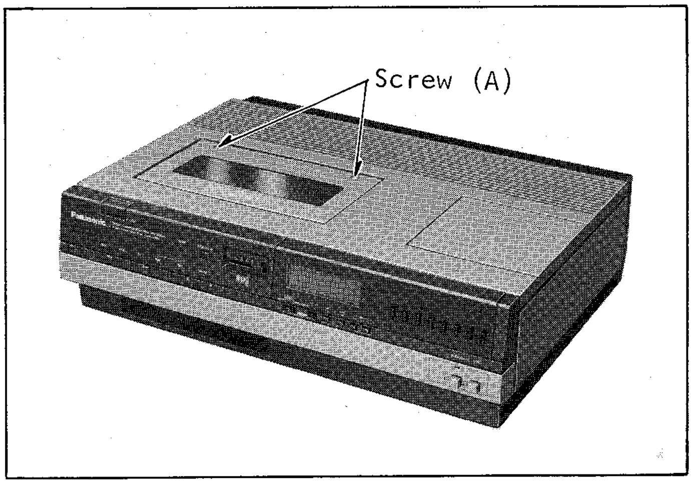


Fig.2.

2-2. Removal of the Top Case
Remove 2 screws (B). Then carefully lift the rear portion and pull it toward the rear of deck to remove.

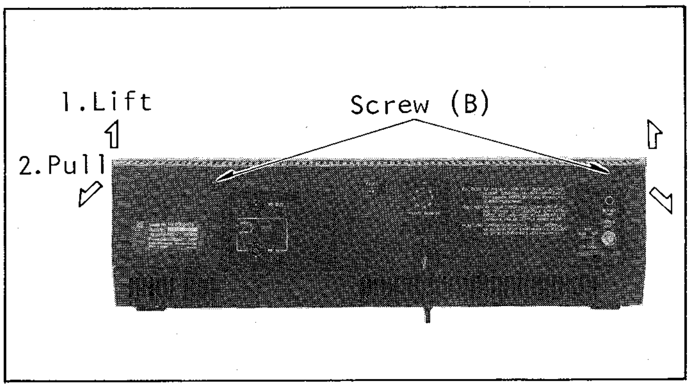

1.Lift
Screw (B)
2.Pull

Fig.3.

2-3. Removal of the Front Panel

Remove 5 screws (C), unlock the locking tab. Then hold the both right and left top portions of the panel and carefully turn it toward the front of the deck remove.

Note: When reinstalling, ensure the following items.

1. The all windows on the panel are fit with knobs on the deck.

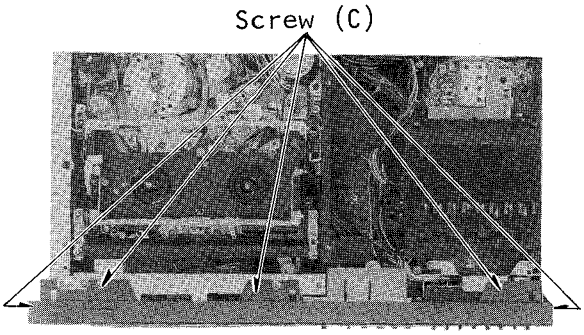


Fig. 4

2-4. Removal of the Cassette Compartment

Since the adjustment is not required when reinstalling the cassette compartment unless the screw located on center was loosened or removed, remove the entire cassette compartment for servicing or adjustments of parts under it.
Remove 2 screws (D) on each side and remove the Cassette Compartment (Cassette Up Holder and Cassette Guide).

Note: Do not remove screws paint locked. (located on center)

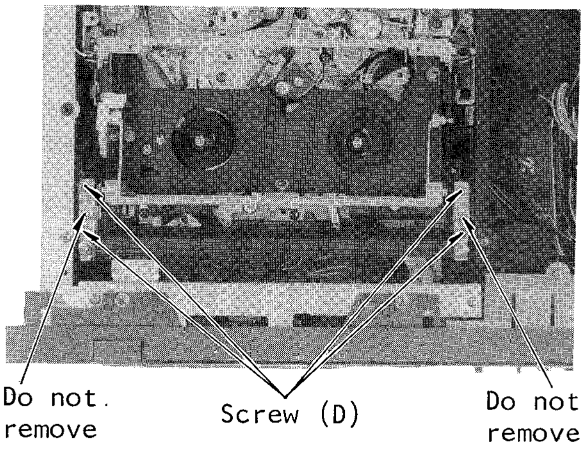


Fig.5.

2-5. Removal of the Cassette Guide

In case only the cassette guide requires replacement or removal, remove a screw (E) on each side.

Note: Unless the cassette up holder unit is installed, this part should not be installed because the adjustment is required. When reinstalling, insert the cassette tape and ensure the clearance between tape and projections on the cassette guide is more than 1 mm.

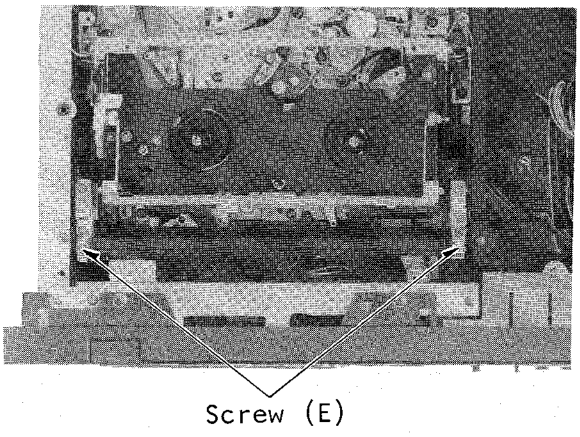


Fig.6.

2-6. Removal of the Bottom plate

Place the deck up side down so the bottom side faces upward. Then remove the 6 screws (F) to remove.

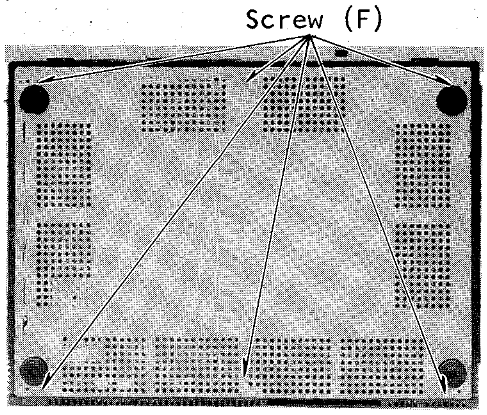


Fig.7.

Note: Place the cushion under the deck for not being damaged the top portion of the deck.

2-7. Opening of the Bottom PC Board

Remove 8 screws (G). Push the front portion of PC Board in the direction indicated for being free the knobs and jacks located on the front, then lift the PC Board to open it.

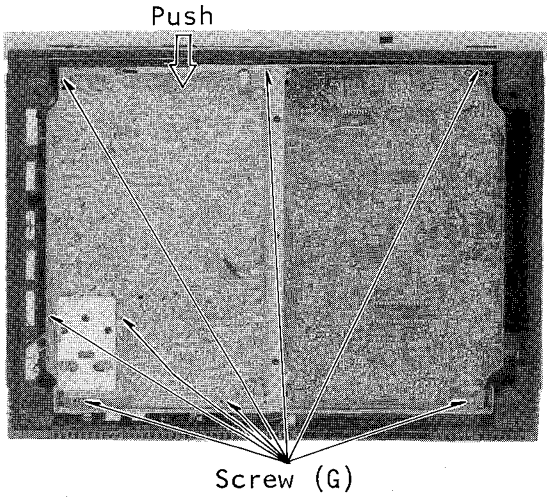


Fig.8.

ADJUSTMENT PROCEDURES

1. POSITION ADJUSTMENT OF CASSETTE GUIDE PIN

This adjustment is required only when the cassette guide pin was replaced or it's mounting screw was loosened.

Equipment Required:
Capstan Reference Plate ... (VFK0141)

1. Remove the Bottom Case, Top Case, Cassette Compartment and the Shield Case. (Refer to the section of "DISASSEMBLY METHOD", Items 2-1, 2-2, 2-6 and 2-4).
2. Remove the Pressure Roller Unit by removing the Retaining Ring & Spring.

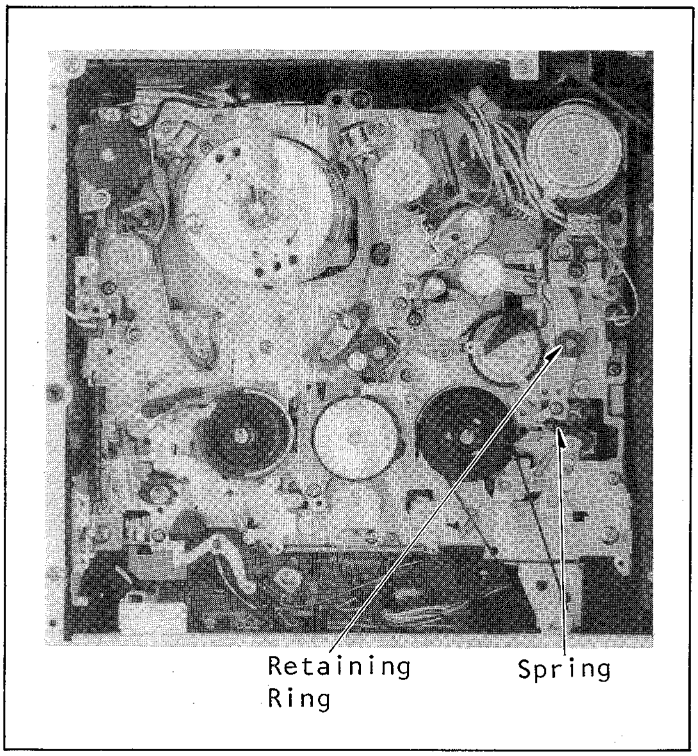


Fig. 9 Opener & Pressure Roller

3. Place the Capstan Reference Plate (VFK0141), set the cassette guide pin into the hole of the plate.
4. Move the plate so the capstan shaft fits snughly in the notch of the plate and tighten the screw (C).

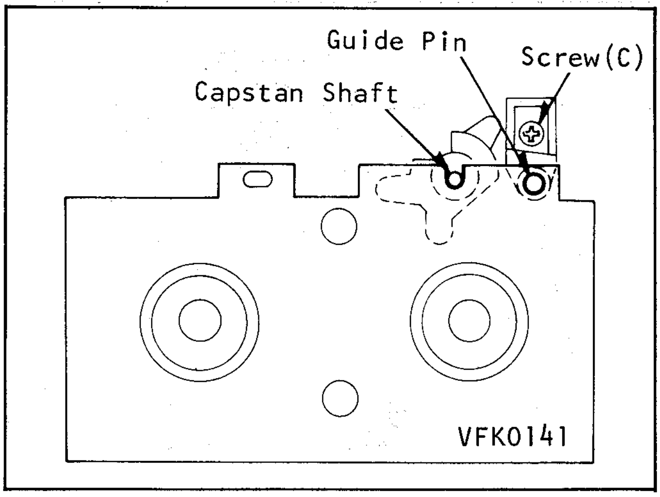


Fig. 16 Adjustment of Guide Pin

2. HEIGHT ADJUSTMENT OF REEL TABLES

Equipment Required:

Post Adjustment Plate	(VFK0138)
Reel Table Height Fixture	(VFK0139)
Retaining Ring Remover, 3 mm ..	(VFK0144)
Hex. Wrench, 1.5 mm	(VFK76)

1. Place the Post Adjustment Plate, set the U-shaped block and place it on the adjustment plate.
2. Fit the sensor of the dial gauge on the cut-out portion of the adjustment plate and set the pointer of gauge to 0 (zero).

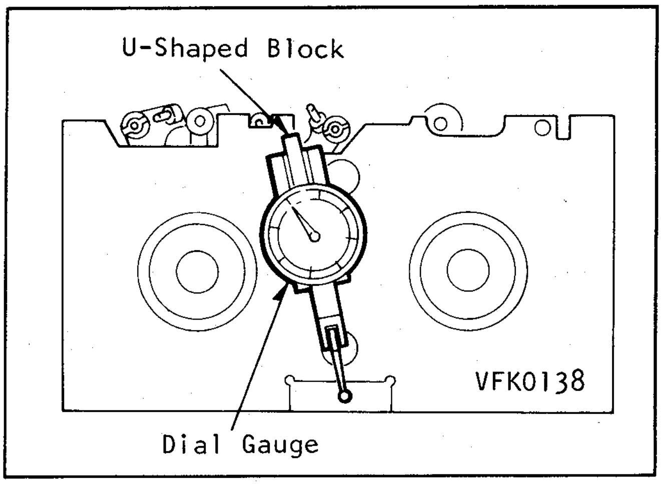


Fig. 11 Height Adjustment -- (1)

3. Fit the sensor of the dial gauge on the top of the reel table and read the gauge. When the top of the reel table is lower than the cut-out, it does not.
In that case slightly press the sensor until it touches the reel table, then read the gauge.

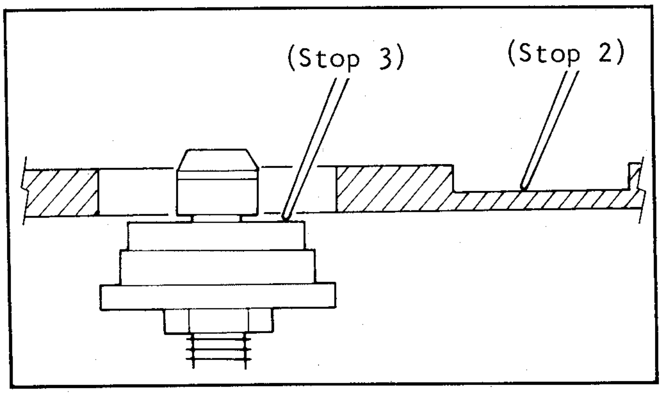


Fig. 12 Height Adjustment -- (2)

4. Confirm that the difference of the readings between steps 2 and step 3 is within specification. If it is out of spec., then adjust the height of the reel table. (The washer is available in sizes of 0.13 mm, 0.25 mm and 0.5 mm of thickness).
5. To replace the washer, remove the counter belt 1, retaining ring and takeup reel table for maintenance the takeup reel table. Remove the 2 retaining rings, tension post unit and supply reel table for maintenance the supply reel table.

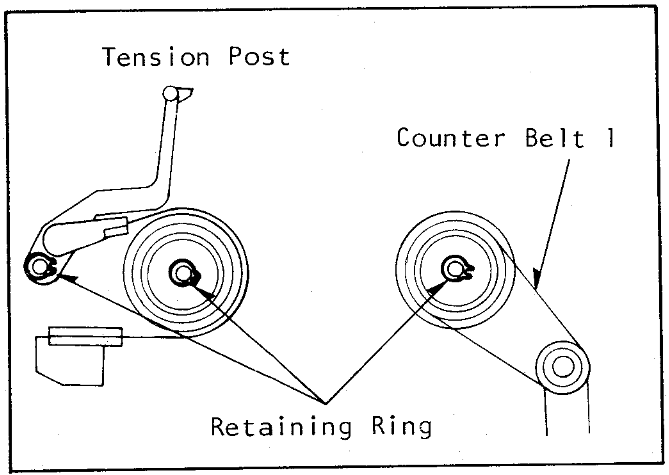


Fig. 13 Height Adjustment -- (3)

3. ADJUSTMENT OF V-STOPPERS

* Equipment Required:
V-Stopper Adjustment Fixture
..... VFKS0007

1. Remove the cabinet parts and open the Bottom P.C. Boards.
2. Remove 3 screws (A) and carefully lift the DD Cylinder to top of the deck.

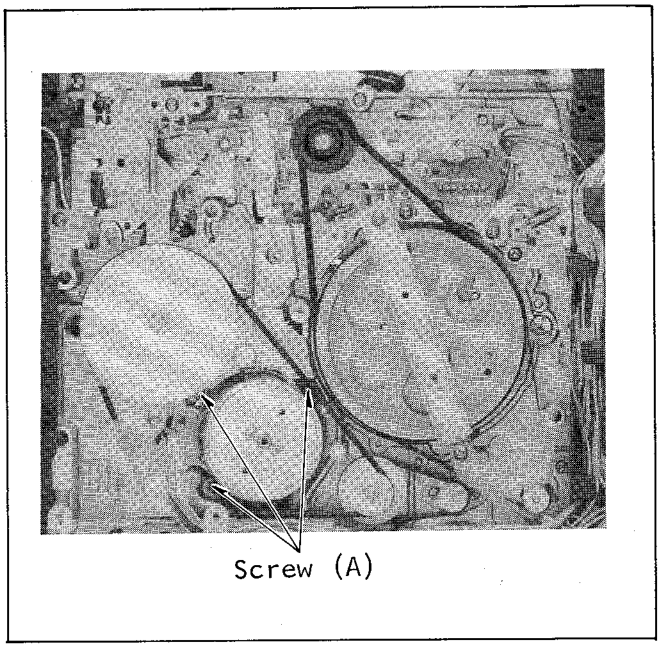


Fig. 14 Location of Screws

3. Keep 4 screws (B) loose, set the fixture by two setting pins. Push the V-stoppers snungly against the pins and tighten 4 screws (B).

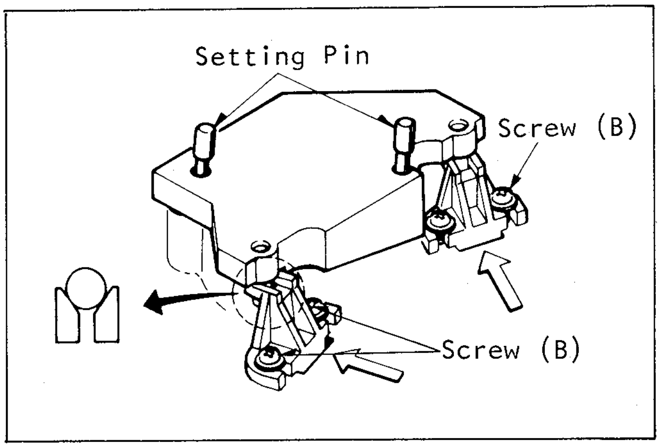


Fig.55. Adjustment of V-Stopper

4. Upon completion of the adjustment, simulate to loading completion and ensure that posts smoothly fit the V-stoppers.

4. TAPE INTERCHANGEABILITY ADJUSTMENT

Note: To perform these adjustment/confirmation procedures, make sure that the tracking control is set into the detent (fixed) position.

Equipment Required:

VHS Alignment Tape	VFM8100H3D
H. Position Adj. Fixture ...	VFK0189
Post Adj. Screwdriver	VFK0137
Hex. Wrench, 0.9 mm	VFK0146
Hex. Wrench, 1.5 mm	VFK76
Oscilloscope	
Nut Driver (Purchase from local supplier)	

4-A Confirmation of Tape Travel

To prevent the alignment tape from being damaged, use a normal cassette tape for confirmation.

1. Playback a cassette tape and confirm that tape travels without curling at the edges of the tape.

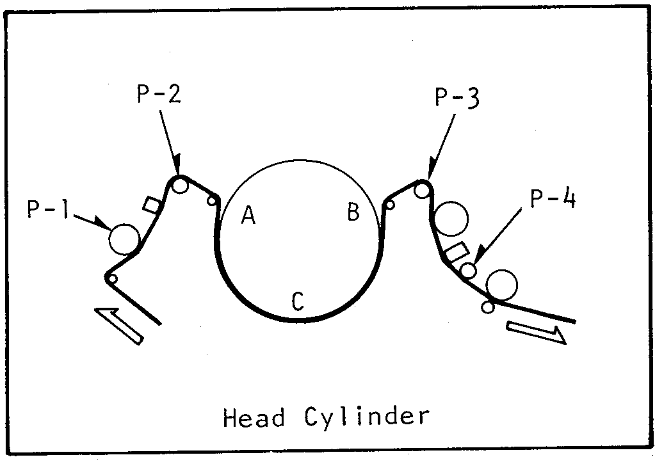


Fig. 16 Location of Posts

2. If curling is apparent, adjust the height of posts by turning the top of post with the post adjustment screwdriver (for P2 & P3) or nut driver (for P1 & P4).

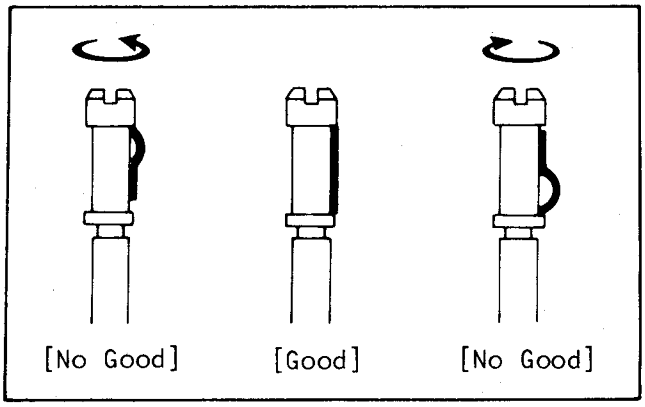


Fig. 17 Height Adjustment

4-B Confirmation of A/C Head Height

This confirmation is required when the A/C Head was replaced and to adjust the height of it preliminary. For final adjustment, perform next item 4-C.

1. Looking at the lower edge of the control head with the tape running, ensure the lower edge of tape runs along the lower edge of the control head.
2. If it doesn't, just slightly turn the nut (A) in either directions to correct it.
   Turn it clockwise to lower the head, counter-clockwise to raise it.

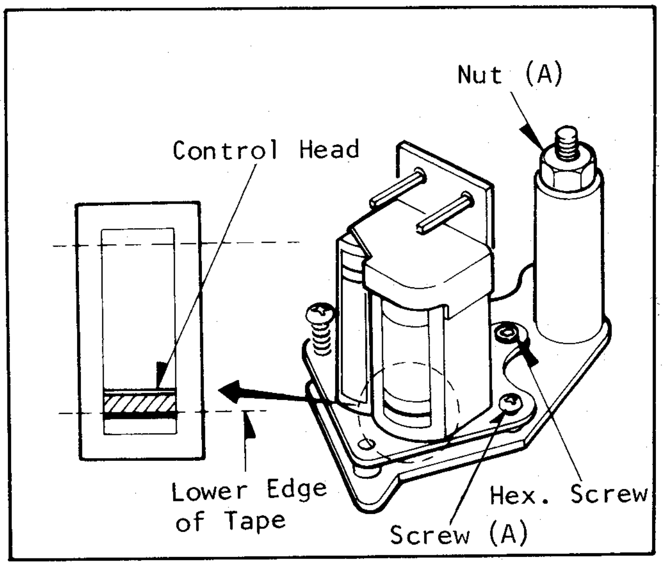


Fig. 18 A/C Head Pre-Adjustment

4-C Height Adjustment of A/C Head

1. Connect the oscilloscope to the audio output jack on the side of the deck.
2. Playback the alignment tape, VFM8100H3D.
3. Adjust the screw (A) and the Hex. screw in the Fig. 19 to obtain the maximum output level.

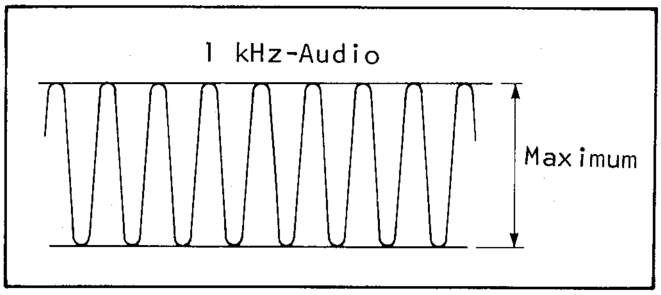

1 kHz-Audio
Maximum

Fig. 19 A/C Head Adjustment - (1)

4-D Confirmation of Tilt of A/C Head

This procedure should be confirmed after the height adjustment of P4.

1. Playback the tape and confirm the tape runs between lower and top limiters of post. And confirm the condition of tape running.
2. If the waving or frilling is apparent on the lower or top edge of the tape, correct it by turning a hex. screw located on the A/C Head Base. (See Fig. 18)

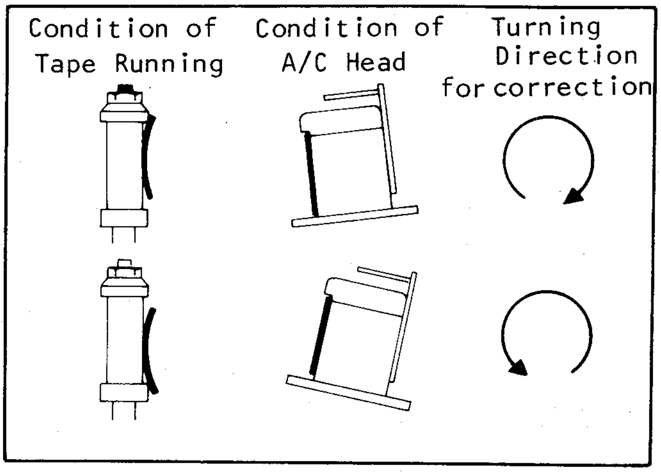

Condition of Tape Running
Condition of A/C Head
Turning Direction for correction

Fig. 20 A/C Head Adjustment - (2)

4-E Horizontal Position Adjustment of A/C Head

1. Connect the oscilloscope to the Test Point, TP3010.
2. Playback the alignment tape, VFM8100H3D, and confirm the RF envelope figure.
3. If the adjustment is required, set the H-position screwdriver into the slot of the adjustment nut and rotate in either of direction to obtain the maximum envelope output.

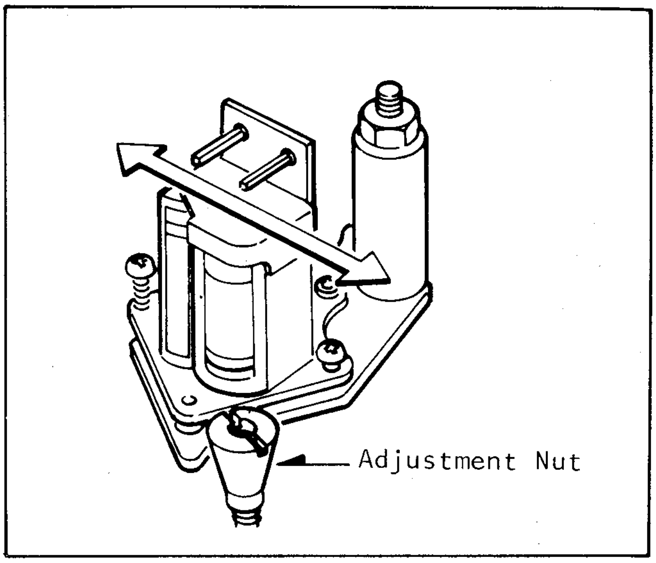

Adjustment Nut

Fig. 21 A/C Head Adjustment - (3)

4-F. Confirmation/Adjustment of Envelope Output

1. Connect the oscilloscope to the Test Point, TP3010.

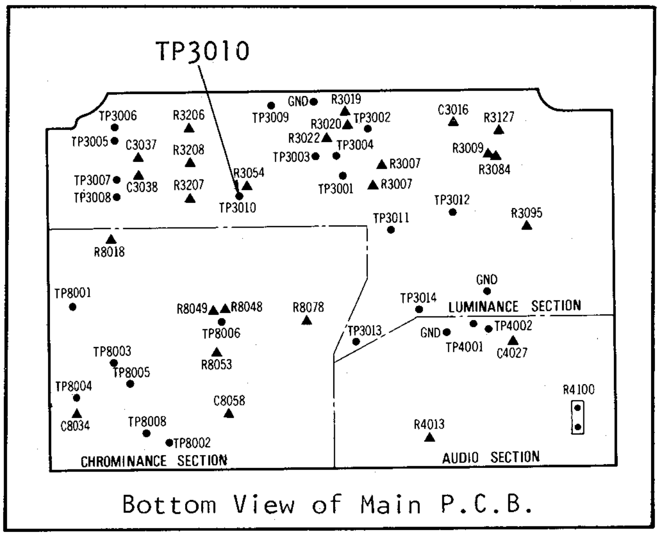

TP3010
TP3006
TP3005
C3037
TP3007
C3038
TP3008
R3206
R3208
R3207
R3054
TP3010
TP3009
GND
R3019
R3020
TP3002
R3022
TP3004
TP3003
TP3001
R3007
R3007
C3016
R3127
R3009
R3084
TP3012
TP3011
R3095
R8018
TP8001
R8049
R8048
TP8006
R8078
R8053
TP8003
TP8005
TP8004
C8034
C8058
TP8008
TP8002
CHROMINANCE SECTION
TP3014
GND
LUMINANCE SECTION
TP3013
GND
TP4002
TP4001
C4027
R4100
R4013
AUDIO SECTION
Bottom View of Main P.C.B.

Fig. 22 Location of TP3010

2. Playback the monoscope portion of the alignment tape, VFM8100H3D and adjust the posts P2 & P3 by watching the scope display so the envelope figure becomes as flat as possible. (V1/V-max ≥ 0.7, V2/V-max ≥ 0.8)

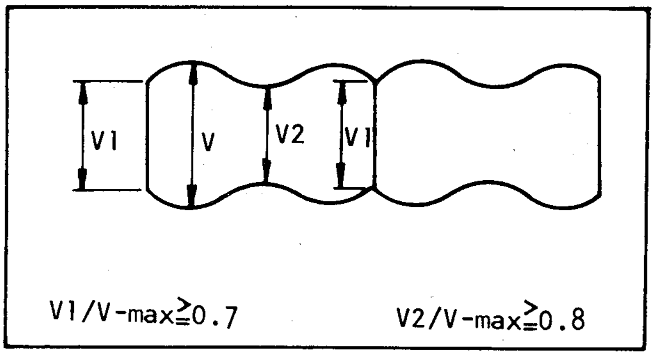

V1
V
V2
V1
V1/V-max≧0.7
V2/V-max≧0.8

Fig. 23 Envelope Figure - (1)

3. When the scope display is as follow, adjust the height of P2 shown below.

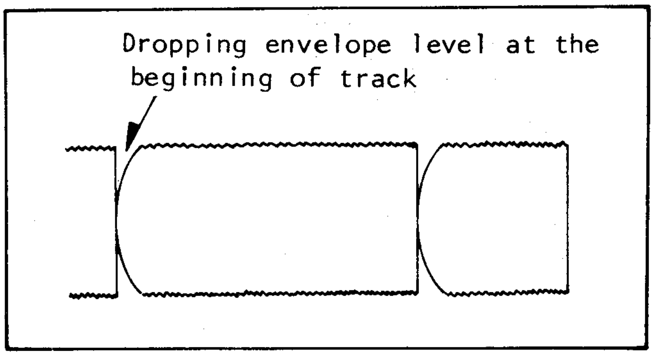

Dropping envelope level at the beginning of track

Fig. 24 Envelope Figure -- (2)

4. When the scope display is as follow, adjust the height of P3 shown below.

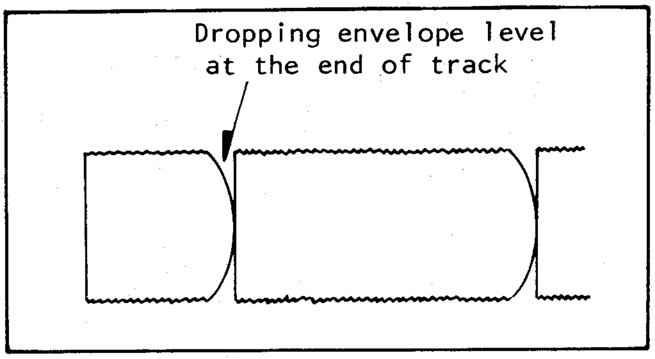

Dropping envelope level at the end of track

Fig. 25 Envelope Figure -- (3)

5. The scope display with P2 and P3 adjusted correctly should become as shown below.

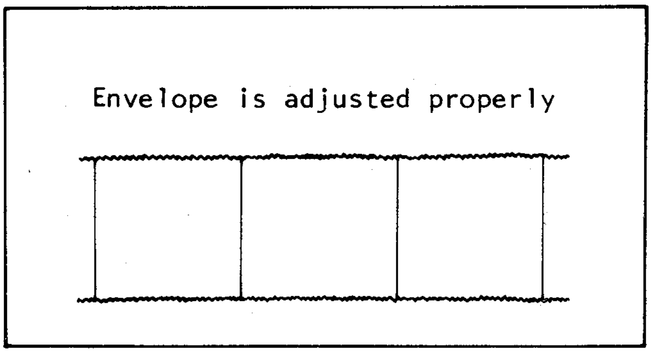

Envelope is adjusted properly

Fig. 26 Envelope Figure -- (4)

6. When the adjustment is required, turn the top of post with the post adjustment screwdriver.

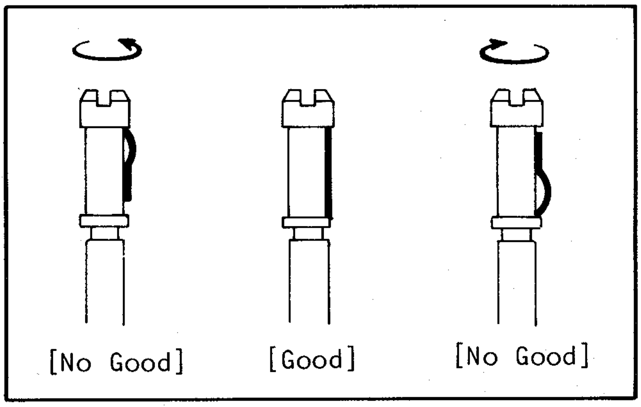

[No Good]
[Good]
[No Good]

Fig. 27 Height Adjustment

5. HEIGHT ADJUSTMENT OF TAPE GUID POSTS

Equipment Required:

Post Adjustment Plate	(VFK0138)
Post Adjustment Screwdriver ...	(VFK0137)
Block Gauge	(VFK0139)
Hex. Wrench, 0.9 mm	(VFK0146)
Nut Driver, 6 mm (Purchase from local supplier)	

This procedure is just the pre-adjustment of the "TAPE INTERCHANBEABILITY ADJUSTMENT" for 4 tape guide posts, if does not by itself constitute the final interchangeability adjustment.

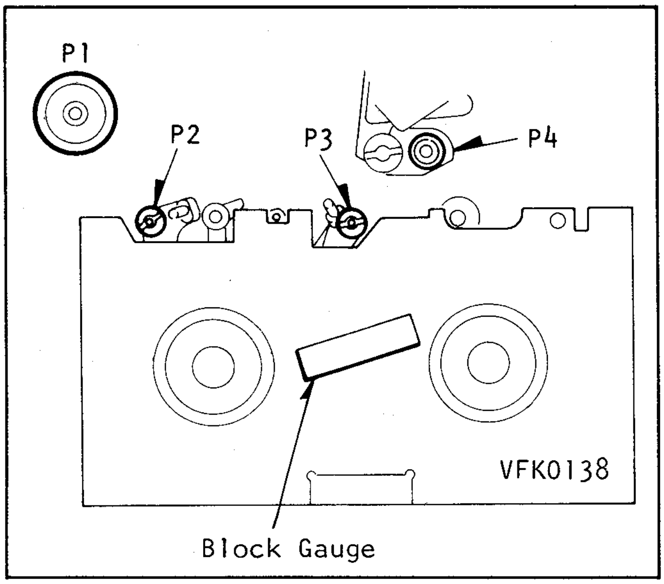


Fig. 28 Location of Posts

1. Place the post adjustment plate on the 4 cassette support pins correctly and put the block gauge on it. And fit the block gauge against each post for confirmation that the post is positioned lower or higher against the adjustment plate.
2. Loosen the locking hex. screws of posts (P2 & P3), then rotate the top of post counter clockwise with post adjustment screwdriver to raise them as is the condition (C) shown below.
3. Then slightly press the block gauge against the post sleeve and rotate the top of the post clockwise with post adjustment screwdriver until to obtain the condition (A) shown below.

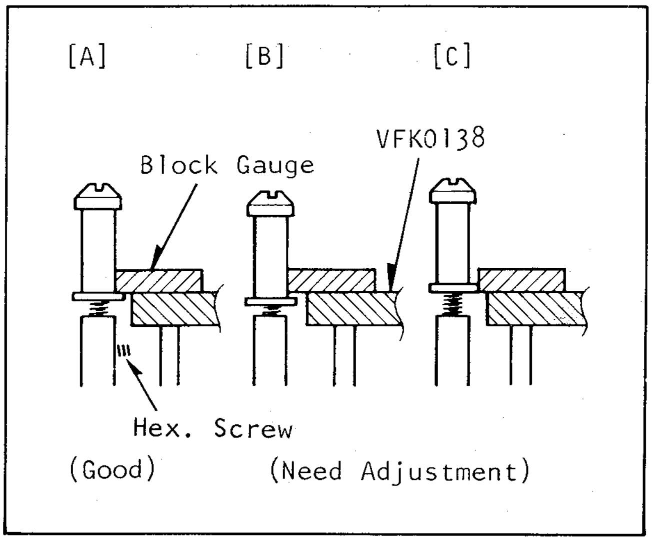


Fig. 29 Height Adjustment

4. Make the same adjustment for posts (P1 & P4) with nut driver. (Remove the post cap for P4 by turning it counter-clockwise).

Note: When the post cap is reinstalled, the direction of it should be as shown below viewing from the direction indicated by the allow.

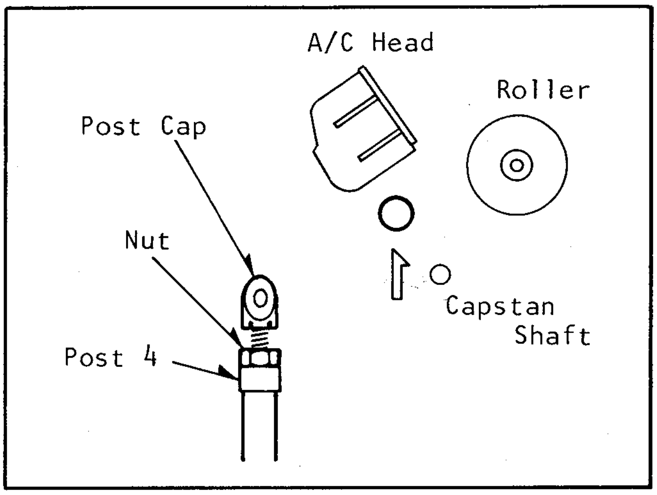


Fig. 30 Installation of Post Cap

6. POSITION ADJUSTMENT OF TENSION POST

Equipment Required:
Tension Post Adjustment Plate ..(VFK0187)
Fine Adjustment Screwdriver ....(VFK0136)

1. Remove the cabinet parts, open P.C. Boards and stand the deck so the rear portion of the deck faces down.
2. Push the eject lock level down.
3. Turn pulley counter-clockwise slowly (viewing from bottom side) by hand to simulate the play mode. Then place the deck up-rightly.

Note: While turning pulley, do not supply excessive force. Fifteen turns of pulley makes play mode (from the start, posts are just moved, to loading completion).

4. Place the adjustment plate, slightly loosen a screw securing the tension band bracket.

5. Insert the fine adjustment screwdriver into the hole and move the tension band bracket in either of direction so the tension post just touches the fixture.

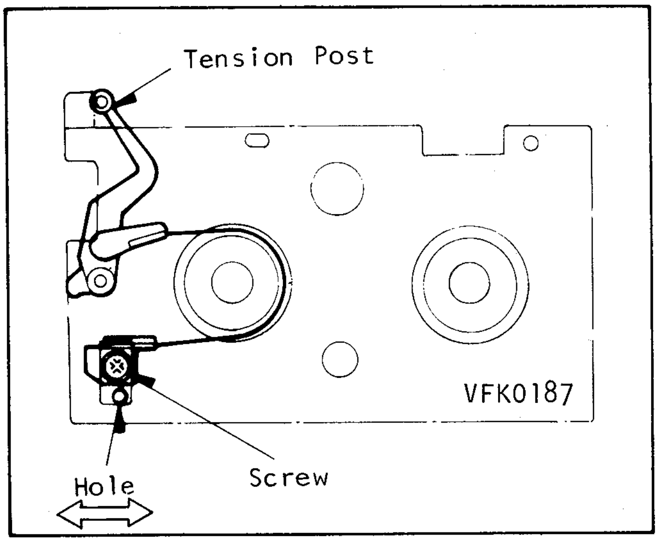
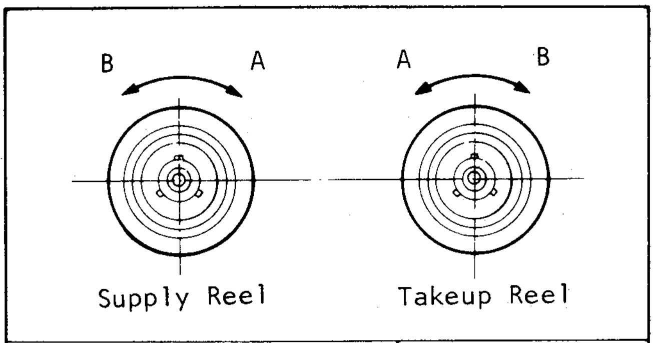

Tension Post
VFK0187
Hole
Screw

Fig. 31 Adjustment of Tension Post

7. CONFIRMATION/ADJUSTMENT OF BRAKE TORQUE

A. Confirmation Procedure

Equipment Required:
Dial Torque Gauge ... (VFK0133)
Adaptor for Gauge ... (VFK0134)


B
A
A
B
Supply Reel
Takeup Reel

	A	B
Takeup	More than 400 g-cm	70∿150g-cm
Supply		95∿195 g-cm

Fig. 32 Spec. of Brake Torque

1. Attach the adaptor to the torque gauge.
   And place the deck in STOP mode.
2. Place the torque gauge on the reel table. The weight of gauge should not rest on the reel table.

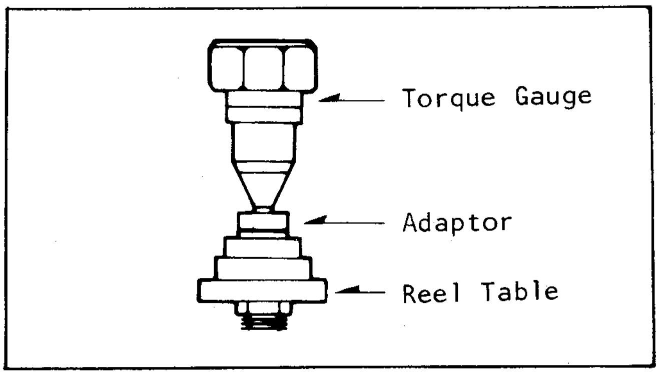

Torque Gauge
Adaptor
Reel Table

Fig. 33 Measuring Method

3. Turn torque gauge in the direction indicated as A or B until the brake begins slipping.
   Read the torque when it begins slipping.

B. Adjustment Procedure

To adjust the brake torque, change the notch.

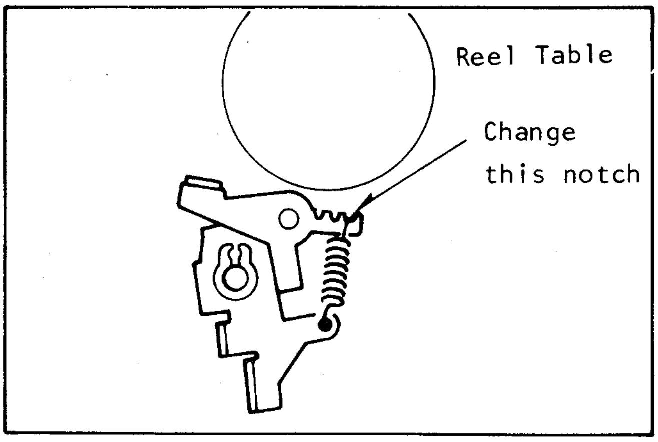

Reel Table
Change
this notch

Fig. 34 Adjustment of Torque

Note: If proper brake torque could not obtained by changing the spring position, clean the rotating surface of the reel table with soft cloth and confirm torque before replace it.

8. CONFIRMATION OF TAKEUP TORQUE

Equipment Required:
Dial Torque Gauge ... (VFK0133)
Adaptor for Gauge ... (VFK0134)

Specifications:
in PLAY mode .... 130 ∿ 180 g-cm
in F.F., REWIND modes
..... more than 400 g-cm

1. Attach the adaptor to the torque gauge.
2. Blind the takeup and supply photo transistors (Q6552 and Q6551) with opaque paper. Lower the cassette up unit (without cassette cover), and turn power switch on.
3. Set a torque gauge to the Takeup Reel Table, push the play button and read torque on gauge. Also work for F.F. mode by pushing the F.F. button.

Note: While measuring, the weight of gauge should not rest on the reel table.

4. Set a torque gauge to the Supply Reel Table, push the rewind button for confirmation of the rewind mode.
5. Remove the opaque paper and reinstall the cassette cover.

Note: There are no adjustment here. If the torque readings are off considerably, rollers or idlers or reel tables may need replacement.

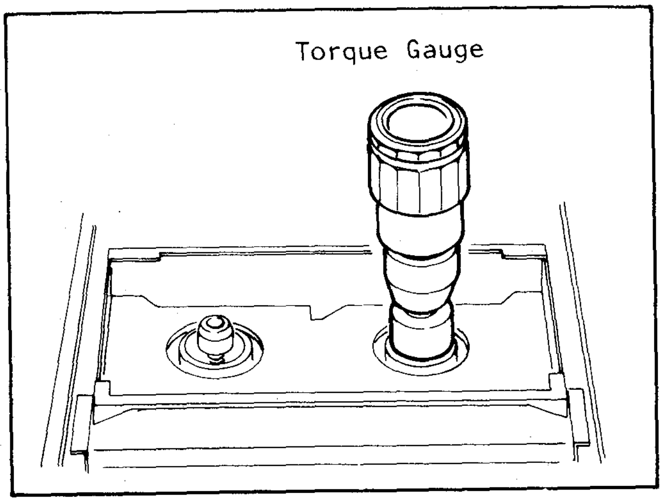


Fig. 35 Measuring Method

9. CONFIRMATION OF PRESSING FORCE OF PRESSURE ROLLER

Equipment Required:
Fan-Type Tension Gauge (VFK66)

1. Playback the cassette tape.
2. Set a Fan-Type Tension Gauge to the part (A) of Main Pressure Arm Unit.
3. Press the Arm with the Gauge, in the direction indicated by the arrow as shown below.
4. Confirm that reading of the Tension Gauge is 1,600 ± 350 g at the moment of tape stop.

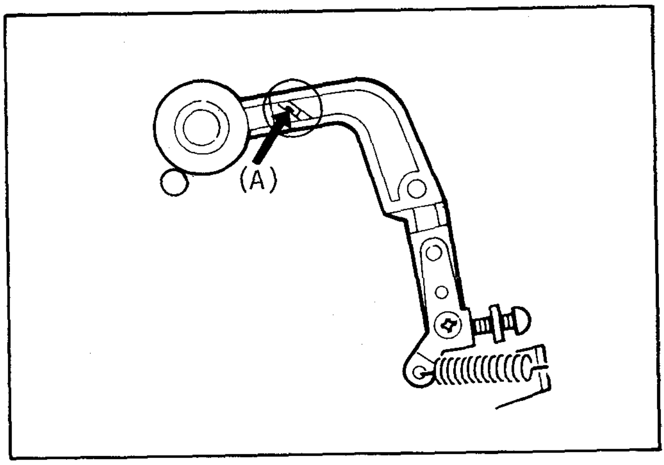


Fig. 36

10. POSITION ADJUSTMENT OF PRESSURE ROLLER

Specification: 1.2 ± 0.3 mm

1. Remove the Cassette Compartment. Blind the photo transistors (Q6551 & Q6552), push the eject lock lever down, turn the safety switch on by hand and push the play button and record button to simulate the REC mode.
2. Continuously push the pause button to simulate the REC-PAUSE mode.
3. Confirm the clearance between the capstan shaft and pressure roller is within the specification.
4. If it is out of spec., adjust it by turning a screw (A) to obtain the specified clearance.

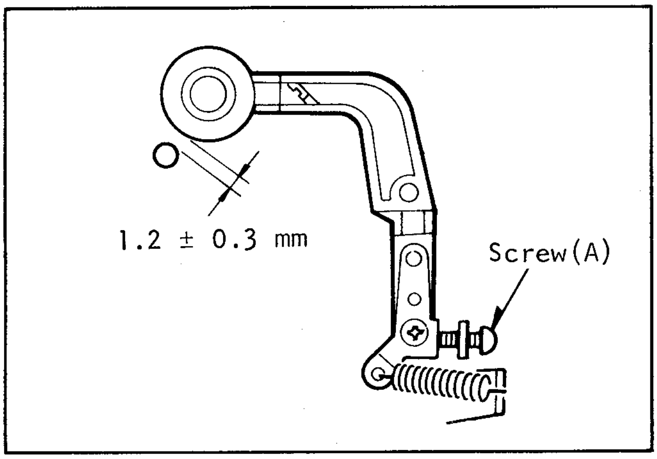


Fig. 37 Spec. of Clearance

11. MEASUREMENT AND ADJUSTMENT OF BACK TENSION

A. Measurement Procedure

Equipment Required:
Back Tension Meter (Tentelometer)
VHS Cassette Tape (120 Minutes Tape)

Specification: 25 ∿ 30 g

1. Remove the Bottom Case, Top Case, Cassette Compartment and the Shield Case.
2. Pull the erase head in the direction indicated by the arrow and hold it by adhesive tape.
3. Playback the cassette tape from its beginning and wait until tape running has stabilized. (For approx. 10 to 20 seconds)
4. Insert tension meter in tape path and confirm reading.
5. If the reading is out of spec., continuously perform the adjustment procedure.

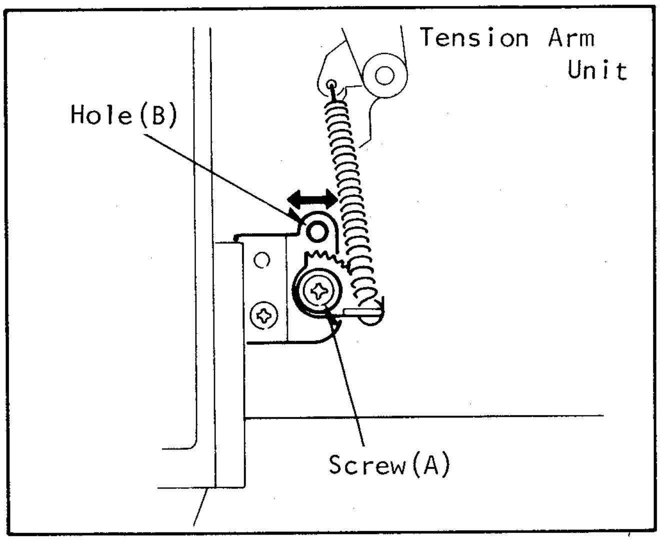


Fig. 38 Adjustment of Back Tension

Notes: 1. Make sure that the three probes of the meter are all in good contact with tape, but out of contact with any parts while measuring.
2. It is recommended to be measured three times as tension meter is very sensitive.

B. Adjustment Procedure

Equipment Required:
Fine Adjustment Screwdriver ..(VFK0136)

1. Loosen a screw (A) and insert the fine adjustment screwdriver into the hole (B).
2. Move the adjustment plate in either of direction indicated by the arrow to obtain the specified tension. Turn the driver clockwise to lower tension, counter-clockwise to raise it.
3. Tighten the screw (A) and varify tension with the meter once again.
4. Reinstall the shield case and cabinet parts.

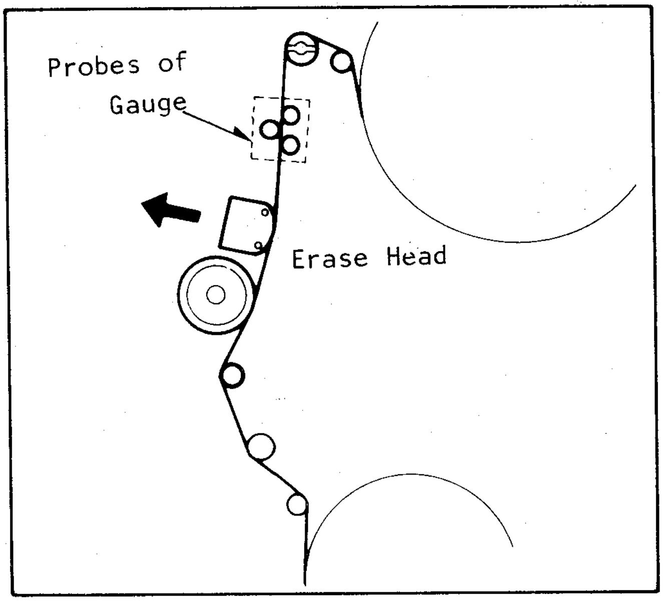


Fig. 39 Measurement of Back Tension

12. CONFIRMATION OF TAPE SPEED

Equipment Required:
Frequency Counter
VHS Alignment Tape ... VFM8100H3D
Specification: 600 ± 1.5 Hz

1. Remove the Bottom Case, Top Case and the Front Panel.
2. Connect the frequency counter to the output terminals of the capstan F.G. signal on the Servo section.
3. Playback the monoscope portion of the alignment tape and wait until tape movement is well stabilized.
4. Read the frequency counter and confirm it is within the specification.
5. If it is out of spec., replace the capstan belt.

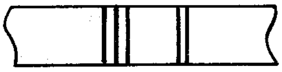
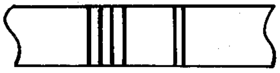
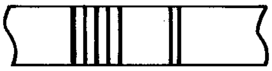
Part No.	Marking	Speed Range
VDV0121A		Slow ↑
VDV0121B		Center
VDV0121C		↓ Fast

Fig. 40 Replace the Capstan Belt

6. When to replace the Capstan Belt, first remove 2 screws (A), Thrust Holder, and the Fast Wind Belt.

Notes: 1. Do not put any oil or grease on the belts or pulleys.

2. When installing the capstan belt, make sure that the marked side comes outside.

13. POSITION ADJUSTMENT OF SAFETY SWITCH

This adjustment is required only when the safety Switch was replaced or mounting screw were loosened.

Equipment Required:
Cassette Holder Fixture ... (VFK0188)

1. Remove the Bottom Case, Top Case, Cassette Compartment and Front Panel. And open the operation panel. (Refer to the section of "DISASSEMBLY METHOD", Items 2-1, 2-2, 2-3, 2-4, 2-5 and 2-6.)
2. Place the fixture, just slightly loosen 2 screws (A) by about half turn.

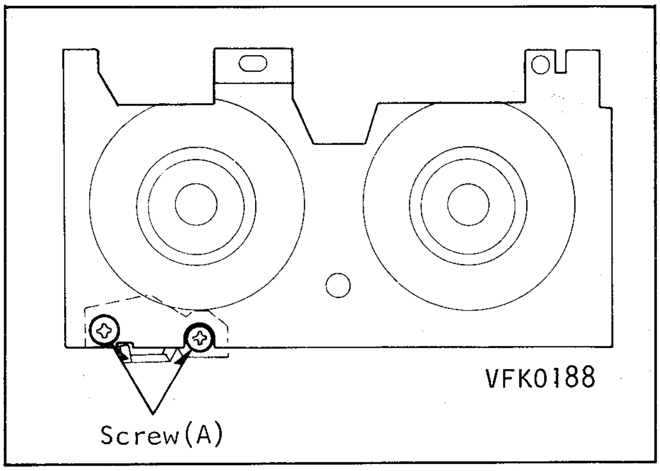


Fig. 41 Adjustment of Safety SW -- (1)

3. Turn the switch base counter-clockwise and then slowly turn clockwise until switch turns on (it clicks). Tighten 2 screws.

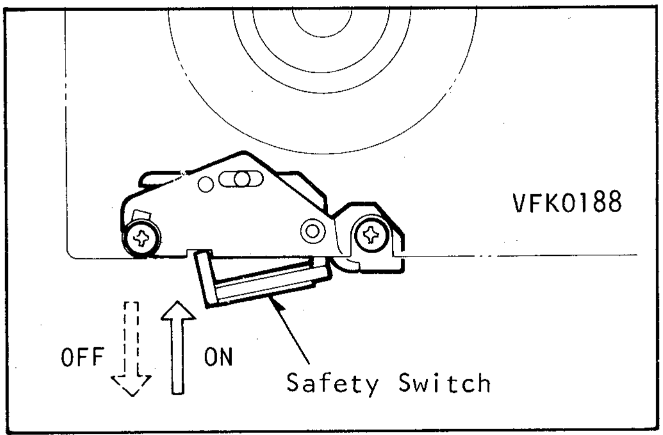


Fig. 42 Adjustment of Safety SW -- (2)

14. ADJUSTMENT OF CASSETTE HOLDER

This adjustment is required only when the screw (A) was removed accidentally.

Equipment Required:
Cassette Holder Fixture ... VFK0188

Note: Before adjustment, ensure the cassette lock lever is unlatched.

1. Remove the Cassette Guide and slightly loosen 6 screws (A) and (B). Keep the cassette holder ejected condition.
2. Insert the fixture and push all the way in till it touches the tabs on the cassette holder.
   Hold the fixture and cassette holder together with your hand, then slowly lower them with watching all holes and cut-outs till the cassette holder latches.

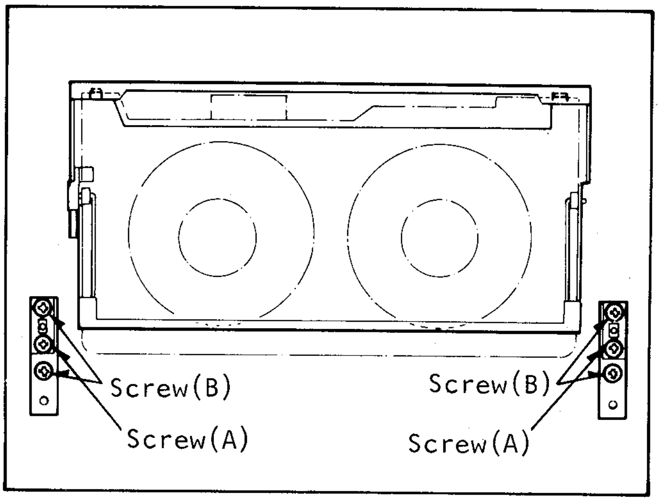


Fig. 43 Adjustment of Cassette Holder

3. Press the center portion of the fixture down not for missing adjusted position then tighten 6 screws.
4. Supply power and ensure the smooth movement by repeating pressing down and ejecting of the cassette holder.

15. ADJUSTMENT OF CAM GEAR AND MODE SELECT SWITCH

General Condition

The mechanism of this model is mostly engaged to the electrical circuit, System Control Circuit, through the mode select switch. Therefore the relation between the mode switch and the cam gear decides all further mechanical movement of the mechanical parts such as levers, gears, rollers and so on. If the adjustment of this item is performed inproperly, the deck will be unloaded or compulsorily stopped. And it will result being damaged at any mechanical or electrical parts.

Adjustment Procedures:

1. Turn loading gear clockwise until the post 2 and 3 were fully unloaded. The small projection on the loading gear will be top portion at the unloading condition.

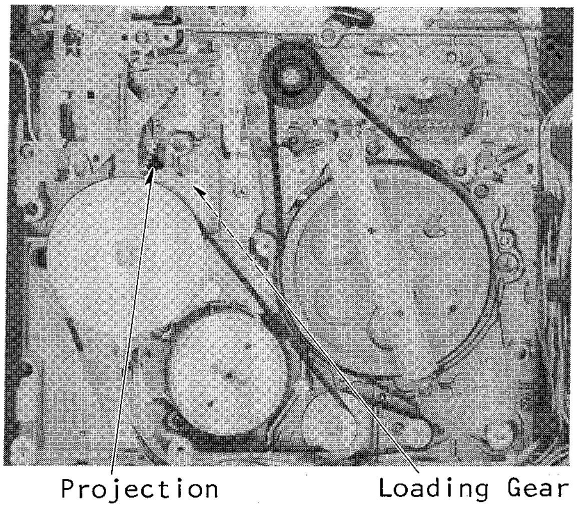


Fig. 44

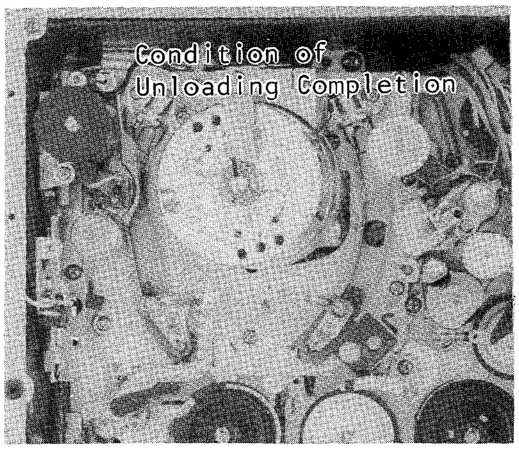

Condition of
Unloading Completion

Fig. 45

2. Install the action gear so the hole on the action gear meets the projection on the loading gear. Ensure that the loading gear is still fully unloaded condition.

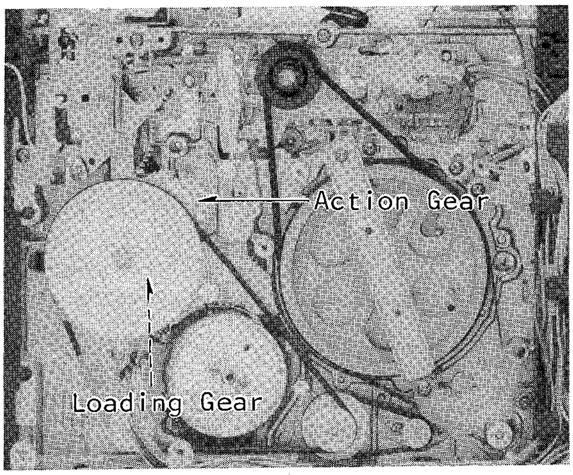

Action Gear
Loading Gear

Fig. 46

3. Slowly slide the main rod so the V-shaped mark meets the V-shaped mark of the mode select switch. This results main rod and mode select switch simulated stop (unloading completion) mode.
4. Insert the cam gear so the hole (A) on the gear meets the hole on the main rod. To meet the two holes easier, use the small hex. wrench (VFK75) or metal pin. Also ensure the two V-shaped marks are fixed.

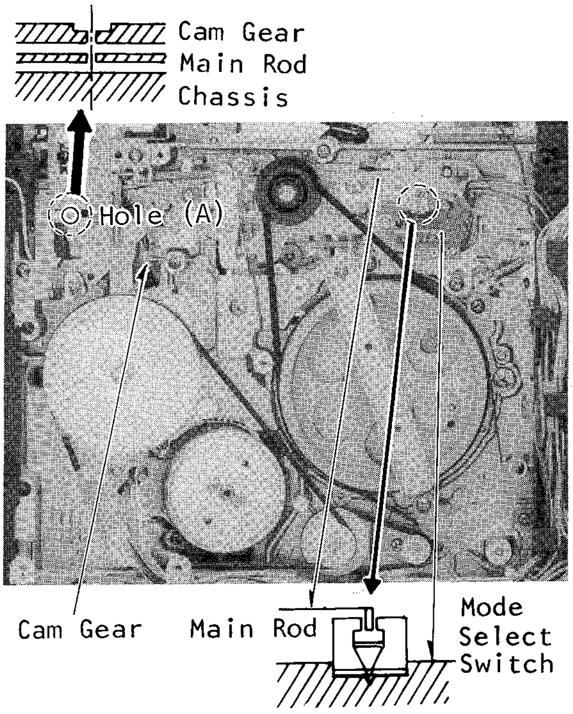

Cam Gear
Main Rod
Chassis
Hole (A)
Cam Gear
Main Rod
Mode
Select
Switch

Fig. 47

5. Install the sector gear so the pin on the sector gear meets the inner slot of the cam gear (simple slot side). And install 2 retaining rings to mount cam gear and sector gear.

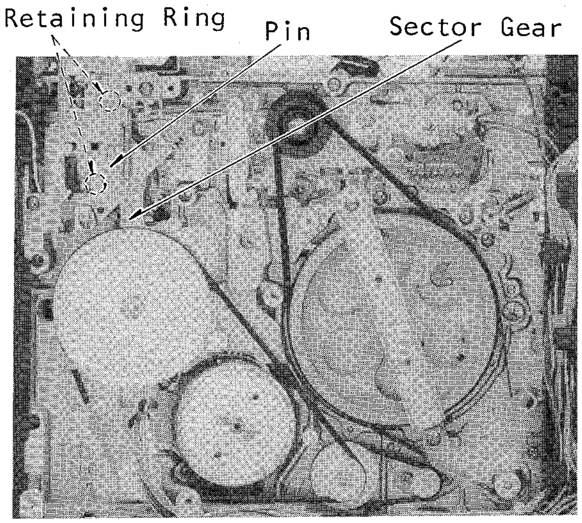

Retaining Ring
Pin
Sector Gear

Fig. 48

6. Final figure should become as illustrated below, and at the same time two V-shaped marks are fixed at the mode select switch.

7. Install the gear protector and tighten the nut for mounting it. And install the large gear so the teeth of it contact the outer teeth of the intermediate gear. Then install a retaining ring to mount it.

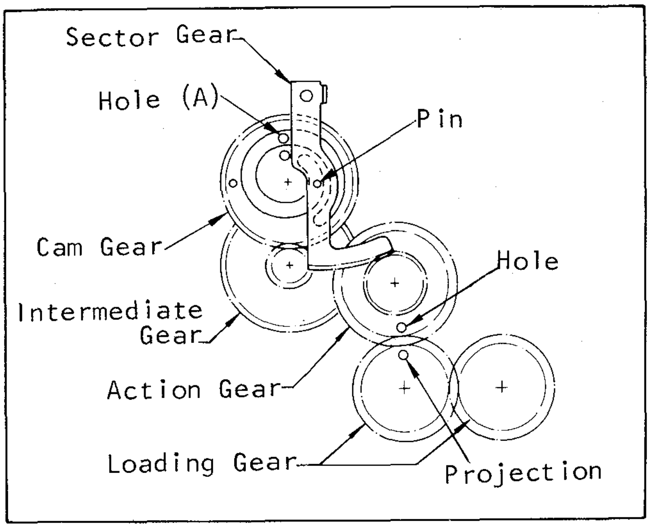

Sector Gear
Hole (A)
Pin
Cam Gear
Hole
Intermediate Gear
Action Gear
Loading Gear
Projection

Fig. 49

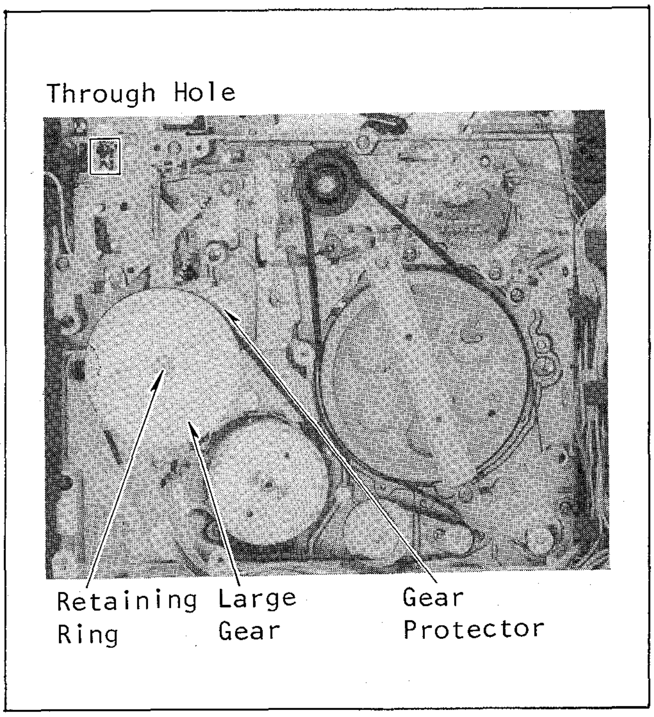

Through Hole
Retaining Ring
Large Gear
Gear Protector

Fig. 50

8. Set the cassette lock lever unit closed and install it from the through hole on the chassis shown above.

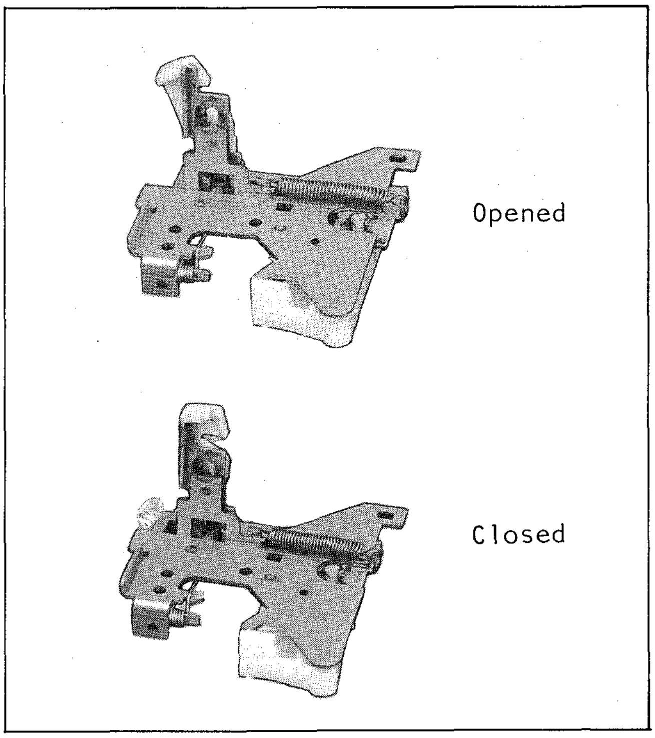

Opened
Closed

Fig. 51

9. Tighten 2 screws (B), install the belt and belt cover and tighten a screw (C). Turn the large pulley in both direction to confirm the smooth movement of this mechanism.

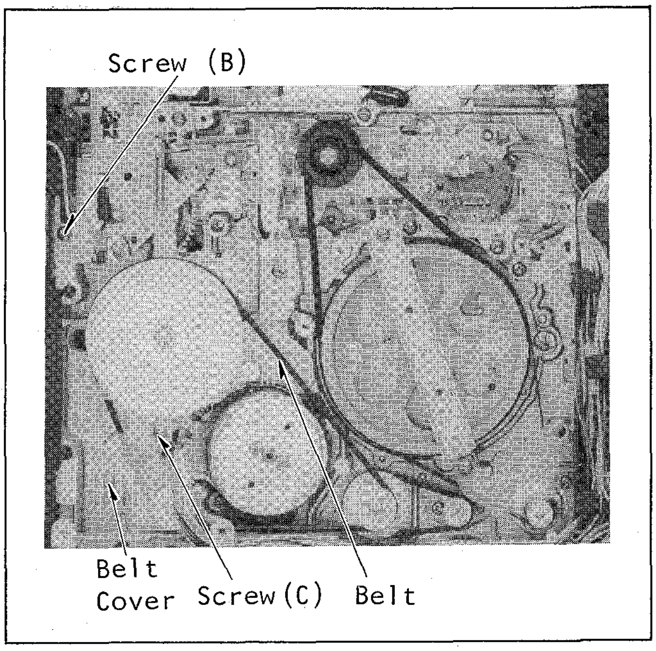
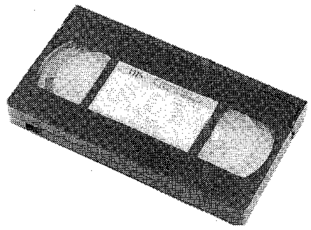

Screw (B)
Belt Cover
Screw (C)
Belt

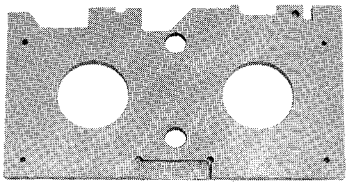
Fig. 52

Servicing Fixtures & Tools

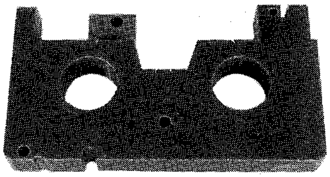
VFM8100H3D VHS Alignment Tape



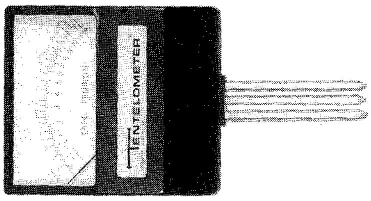
VFK0138 Post Adjustment Plate



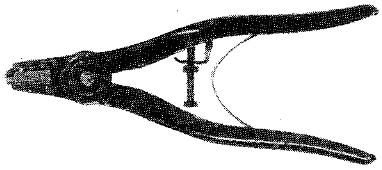
VFK0188 Cassette Holder Fixture



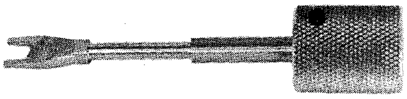
Back Tension Meter
(Tentelometer, Made in U.S.A.)



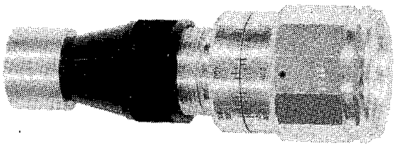
VFK0144 Retaining Ring Remover (3mm)
VFK0145 Retaining Ring Remover (4mm)



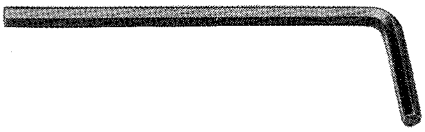
VFK0189 H-Portion Adj. Fixture



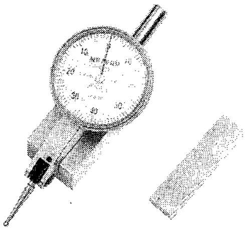
VFK0133 Dial Torque Gauge
VFK0134 Adaptor for VFK0133
VFK0180 (Plastic Clamper Only)



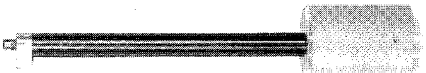
VFK0146 Hex. Wrench (0.9mm)
VFK75 Hex. Wrench (1.25mm)
VFK76 Hex. Wrench (1.5mm)



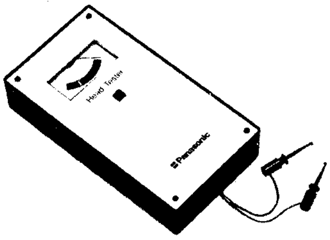
VFK0139 Reel Table Height Jig



VFK0135 Eccentric Screwdriver

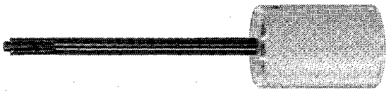


VFK0184 Head Tester

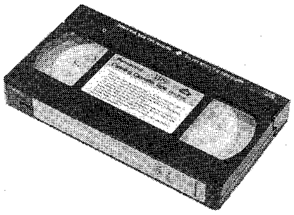


VFK66 Fan Type Tension Gauge

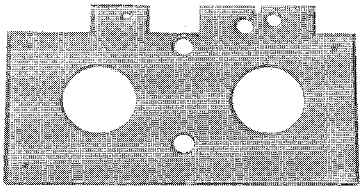
VFK0136 Fine Adjustment Screwdriver



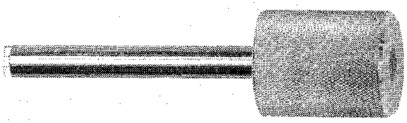
VFK0185 Cleaning Cassette Tape



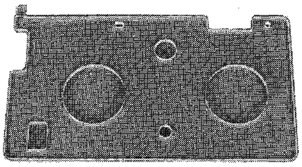
VFK0141 Capstan Reference Plate



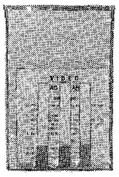
VFK0137 Post Adjustment Screwdriver



VFK0187 Tension Post Adj. Fixture



VFK27
Head Cleaning Stick



MOR265 Morlytone Grease

ELECTRICAL ADJUSTMENT PROCEDURES

This section provides complete electrical adjustment procedures which may be required for electronic circuits of PAL VHS video cassette recorder.

1. Test Equipment

To perform the electrical adjustments completely, the following equipment is required.

1. VTVM (Vacuum Tube Volt Meter) or high impedance digital voltmeter
   Voltage Range: 0.001 - 50 V
2. Dual-trace Oscilloscope
   Voltage Range: 0.005 - 50 V/Div.
   Frequency Range: DC - 10 MHz
   Probes: 10:1, 1:1
3. Frequency Counter
   Frequency Range: 0 - 10 MHz
4. Signal Generator
   Sinewave: 0 - 10 MHz
5. Video Sweep Generator
   Frequency Range: 0 - 10 MHz
6. Color TV Receiver or Monitor
7. Plastic Tip Driver
8. VHS Alignment Tape
   VFM8100H3D

2. Adjustment Procedures

1. System Control Section

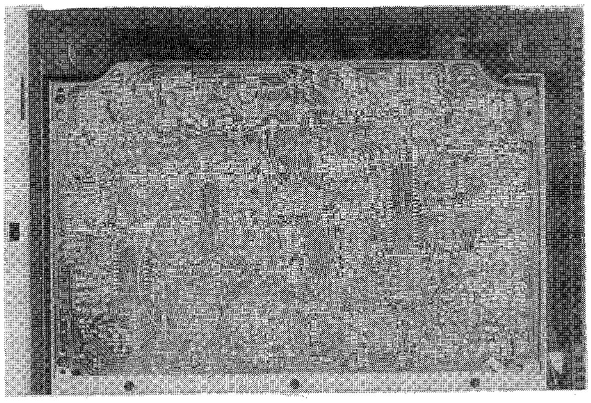


Fig. 1

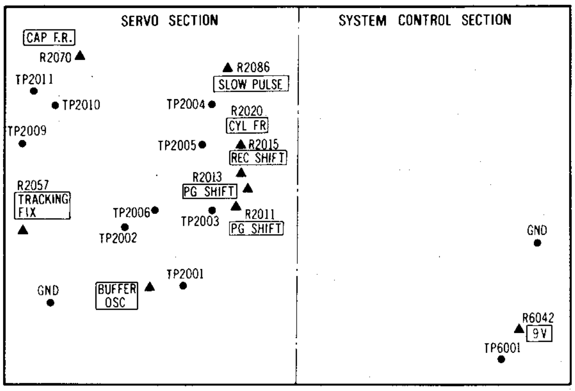

SERVO SECTION
SYSTEM CONTROL SECTION
CAP F.R.
R2070
TP2011
TP2010
TP2009
R2086
SLOW PULSE
TP2004
R2020
CYL FR
TP2005
R2015
REC SHIFT
R2013
PG SHIFT
R2057
TRACKING FIX
TP2006
TP2003
R2011
PG SHIFT
TP2002
TP2001
GND
BUFFER OSC
GND
R6042
9V
TP6001

Fig. 2

1-1. +9V Adjustment

Test Point: TP6001
Adjustment: 9V (R6042)

1. Connect the D.V.M. (Digital Volt Meter) to TP6001 on the System Control Circuit (VEP02115).
2. Place the unit in Stop mode.
3. Adjustment 9V (R6042) so that the voltage becomes 9.3 ± 0.1V.

2. Servo Control Section

2-1. Buffer Oscillator Frequency Adjustment

Test Point: TP2001
Adjustment: BUFFER OSC (R2006)

1. Do not supply any video signal to the video input of the unit.
2. Connect the oscilloscope to TP2001 on the Servo Control circuit (VEP02115).
3. Place the unit in Rec Play mode.
4. Adjust BUFFER OSC (R2006) so that the "T" portion becomes $21^{+0.2}_{-0}$ m sec as shown Fig. 3

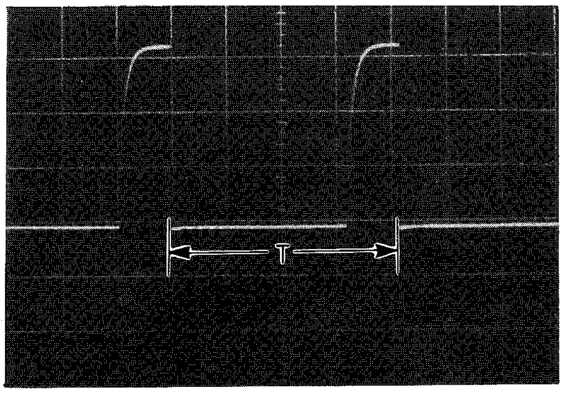


Fig. 3

5. Supply a video signal to the Video input of the unit.
6. Place the unit in Rec. Play mode.
7. Make sure that the "T" portion is 20 msec as shown Fig. 4.

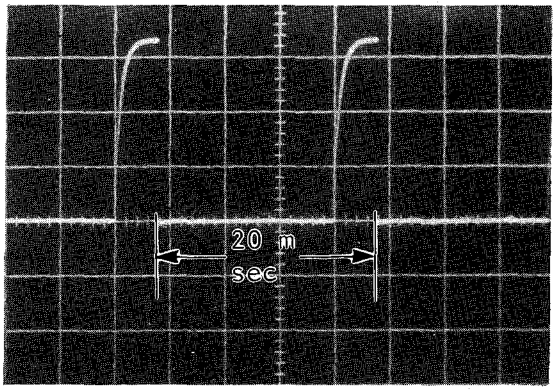


Fig. 4

2-2. Cylinder Free Run Adjustment

Test Point: TP2003, TP2004, TP2006
Adjustment: CYL FR (R2020)

1. Supply a video signal to the Video input or tune in the tuner of VTR to a local on-air.
2. Place the unit in Rec. Play mode.
3. Connect the oscilloscope CH1 to TP2003 and CH2 to TP2004 on the servo control circuit (VEP02115) and set it to CHOP mode.
4. Pre-adjust CYL FR (R2020) so that sampling pulses (TP2003) are locked on rising slope of tranpezoidal waveform (TP2004) as shown Fig. 5.

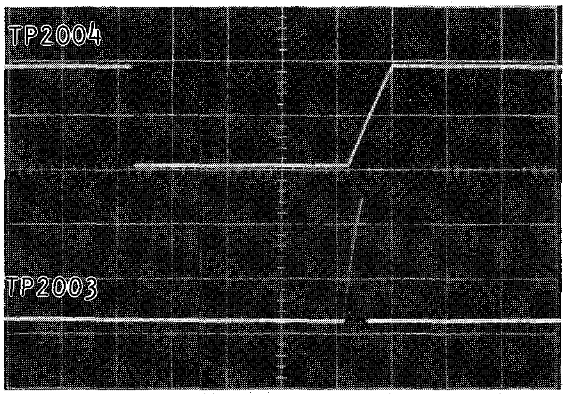


Fig. 5

5. Connect the D.V.M. (Digital Volt Meter)
6. Adjust CYL FR (R2020) so that the voltage at TP2005 becomes 3.7 ± 0.1V.

2-3. Capstan Free Run Adjustment

Test Point: TP2009, TP2010, TP2011
Adjustment: CAP FR (R2070)

1. Supply a video signal to the video input or tune in the tuner of VTR to local on-air.
2. Place the unit in Rec. Play mode.
3. Connect the oscilloscope CH1 to TP2009 and CH2 to TP2010 on the servo circuit (VEP02115) and set it to CHOP mode.
4. Pre-Adjust CAP.FR (R2070) so that sampling pulses (TP2009) are locked on rising slope of Trapezoidal waveform (TP2010) as shown Fig.6 .

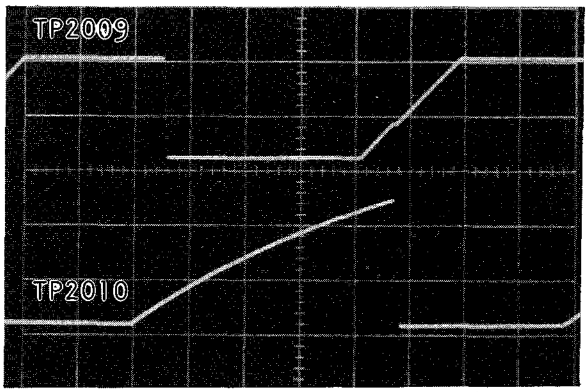


Fig. 6

5. Connect the D.V.M (Digital Volt Meter) to TP2011.
6. Adjust CAP F.R (R2070) so that the voltage at TP2011 becomes 4.0 ± 0.1V.

2-4. P.G Shifter Adjustment

Test Point: TP2002, TP3010
Adjustment: P.G SHIFT (R2011, R2013)

1. Connect the jumper wire between TP3005 and TP3007.
2. Connect the oscilloscope CH1 to TP2002 on the servo circuit (VEP 02115) and CH2 to TP3010 on the luminance circuit (VEP0317).
3. Play back the recorded reference tape (VFM8100H3D) and set the oscilloscope to CHOP mode. Then expand the switching position of the RF envelope.
4. Adjust PG SHIFT (R2011, R2013) so that the rising and falling edges of switching pulse become the center of overlap portion as shown Fig. 7.

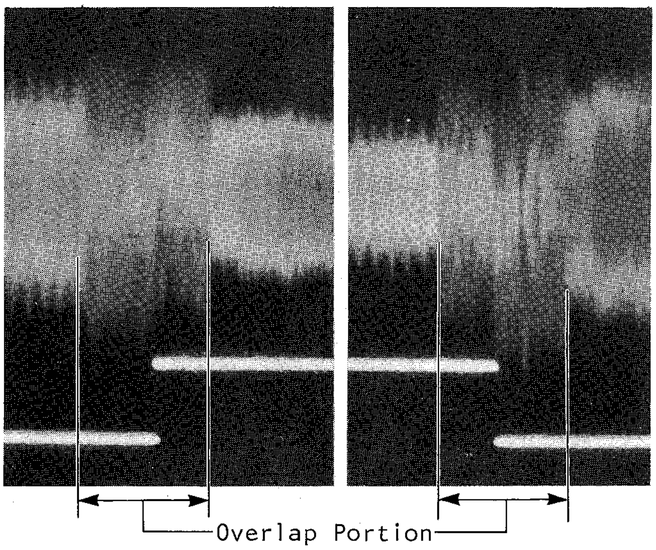


Fig. 7

5. Make sure that the difference between rising edge and falling edge of switching pulse is more less than 10 msec.
6. Remove the jumper wire.

2-5. REC Shifter Adjustment

Test Point: TP2002, TP3014
Adjustment: REC SHIFT (R2015)

1. Supply a video signal to the video input or tune in a local on-air TV programme.
2. Connect the oscilloscope CH1 to TP2002 on the servo circuit (VEP 02115) and CH2 to TP3014 on the luminance circuit (VEP03107).
3. Place the unit in Rec. Play mode.
4. Set the oscilloscope to the Delay mode and expand the vertical sync portion.
5. Adjust REC SHIFT (R2015) so that the before the start of vertical sync as shown Fig. 8.

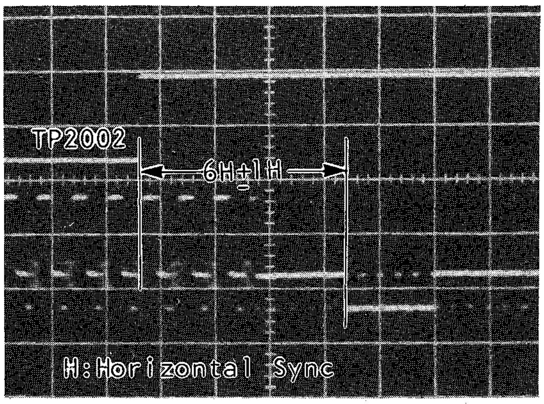


Fig. 8

2-6. Tracking Fix Adjustment

Test Point: TP2002, TP2009
Adjustment: TRACKING FIX (R2057)

1. Supply a video signal to the video input.
2. Place the unit in Rec. Play mode.
3. Connect the oscilloscope CH1 to TP2002 and CH2 to TP2009 on the servo circuit (VEP02115).
4. Confirm the "A" portion is 23 ± 3 msec as shown Fig. 9.

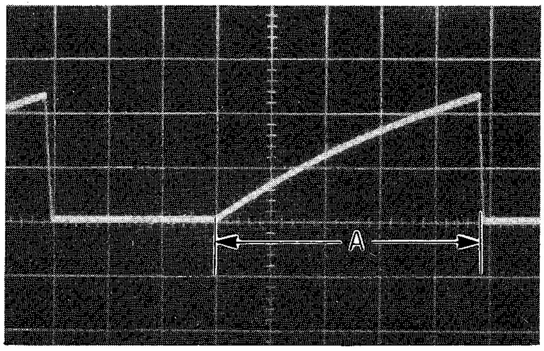


Fig. 9

5. Play back the just recorded portion.
6. Set the tracking control to the click point.
7. Set the oscilloscope the CHOP mode and expand the rising portion of the waveforms.
8. Adjust TRACKING FIX (R2057) so that "T" portion becomes 0.4 ± 0.4 msec as shown Fig. 10.

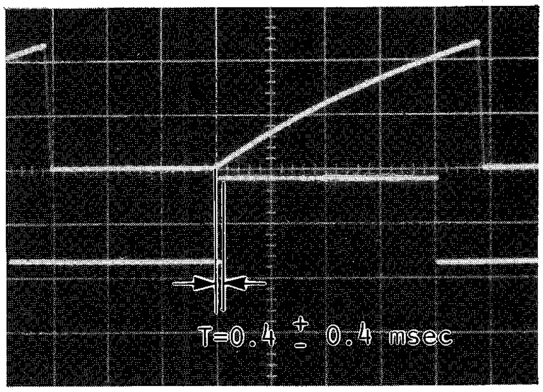


Fig. 10

2-7. Slow Pulse Adjustment

Test Point: TP2008, TP2002
Adjustment: SLOW PULSE (R2086)

1. Connect the oscilloscope to TP2008 and trigger with the signal at TP2002.
2. Play back the reference tape (VFM8100H3D).
3. Set the PAUSE mode and press the Search button.
4. Adjust SLOW PULSE (R2086) so that "T" portion of slow pulse becomes 4.6 msec ± 0.2 msec as shown Fig. 11.

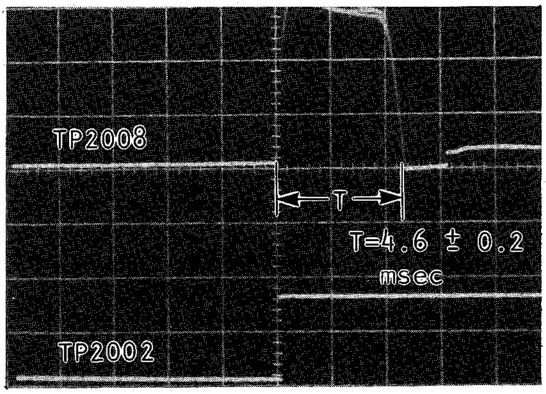


Fig. 11

3. Luminance & Chrominance Section

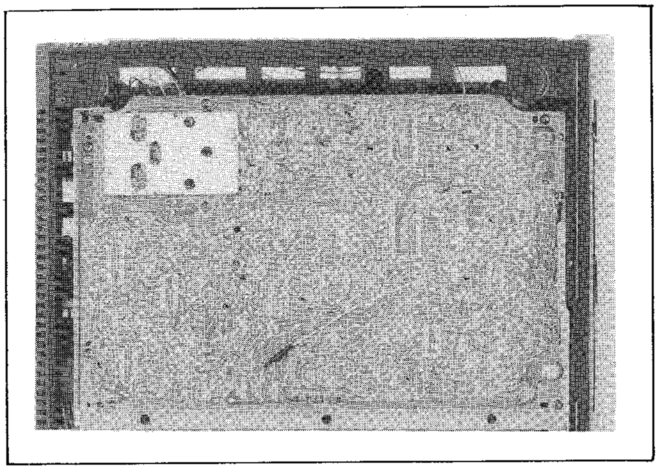


Fig. 12

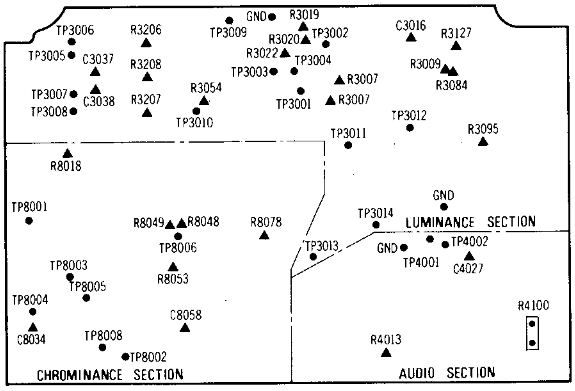

TP3006
R3206
TP3009
GND
R3019
R3020
TP3002
C3016
R3127
TP3005
C3037
R3208
R3022
TP3004
TP3003
R3009
R3084
R3007
TP3007
C3038
R3207
R3054
TP3010
TP3001
R3007
TP3008
TP3012
R3095
TP3011
R8018
TP8001
R8049
R8048
R8078
TP8006
TP3014
GND
LUMINANCE SECTION
TP3013
GND
TP4002
TP4001
C4027
TP8003
TP8005
R8053
TP8004
C8034
C8058
R4100
TP8008
TP8002
R4013
CHROMINANCE SECTION
AUDIO SECTION

Fig. 13

3-1. AFC Adjustment

Test Point: TP8001
Adjustment: AFC (R8018)

1. Insert a video cassette tape to cassette compartment and place the unit in Rec. Play mode.
2. Do not supply any video signal to the video input of the unit.
3. Connect the frequency counter to TP8001 on the Chrominance circuit (VEP03107)
4. Adjust AFC (R8018) so that the indication of frequency counter becomes 15.625 kHz ± 50 Hz.
5. Make sure that it is 15. 625KHz ± 1Hz when a video signal is supplied into video input.

3-2. APC Adjustment

Test Point: TP8003, TP8004
Adjustment: APC (C8034)

1. Connect the jumper wire between TP8003 and GND on the chrominance circuit (VEP03107).
2. Do not supply any video signal into the video input.
3. Place the unit in Rec. Play mode.
4. Connect the frequency counter to TP8004 on the same board (VEP03107).
5. Adjust APC (C8034) so that indication of frequency counter becomes 4.435572 MHz ± 50 Hz.
6. Remove the jumper wire.

3-3. Reference Oscillation Frequency Adjustment

Test Point: TP8002
Adjustment: 4.43 MHz. FREQ (C8058)

1. Connect the frequency counter to TP8002 on the chrominance circuit (VEP03107).
2. Do not supply any video signal to the video input.
3. Place the unit in Stop mode.
4. Adjust 4.43 MHz FREQ (C8058) so that indication of frequency counter becomes 4.433619 MHz ± 10 Hz.

3-4. Comb Balance Adjustment

Test Point: TP8005,TP8006
Adjustment: COMB BAL (R8053)

1. Set the Colour Mode Switch to "COLOUR".
2. Insert a video cassette tape to the unit and place the unit in play mode.
3. Connect the sweep generator to TP8005 and connect the oscilloscope to TP8006 on the chrominance circuit(VEP03107).
4. Adjust sweep generator so the peak level on the oscilloscope becomes about 500mV P-P.
5. Adjust COMB BAL(R8053) so that "A" portion of carrier leakage becomes minimum as shown Fig. 14.

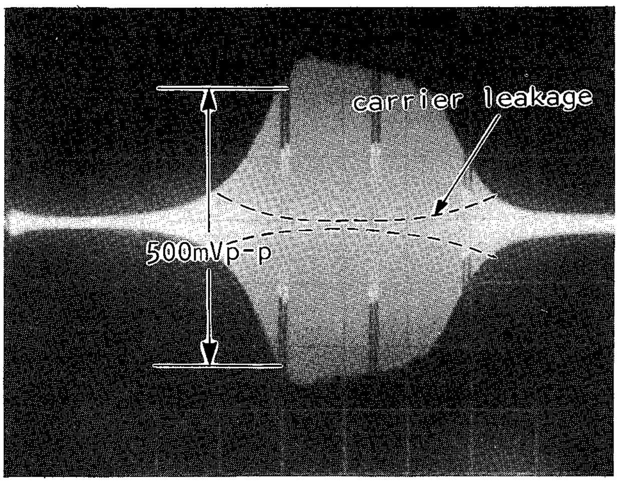


Fig. 14

3-5. E-E Level Adjustment

Test Point: TP3014
Adjustment: E-E LEVEL (R3007)

1. Insert a video cassette to the unit and place the Rec. Play mode.
2. Supply the color bar signal to the Video input of the unit.
3. Connect the oscilloscope to TP3014 on the luminance circuit (VEP03107).
4. Adjust E-E LEVEL (R3007) so that the luminance level at the TP3014 becomes 2.0 ± 0.1Vp-p as shown Fig. 15.

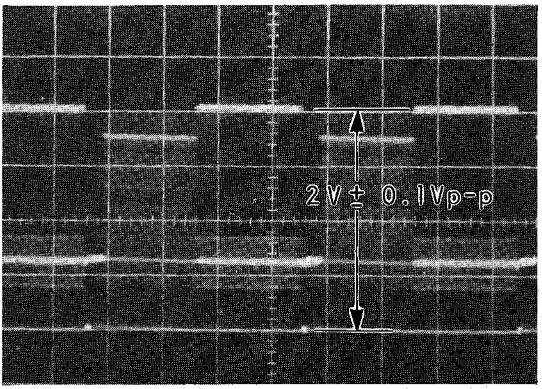


Fig. 15

3-6. SYNC Tip Frequency and Deviation Adjustment

Test Point: TP3003,TP3011
IC3004(25)
Adjustment: FM FREQ (C3016)
DEVIATION (R3009)

1. Connect the C.R. jumper wire as shown Fig. 16.

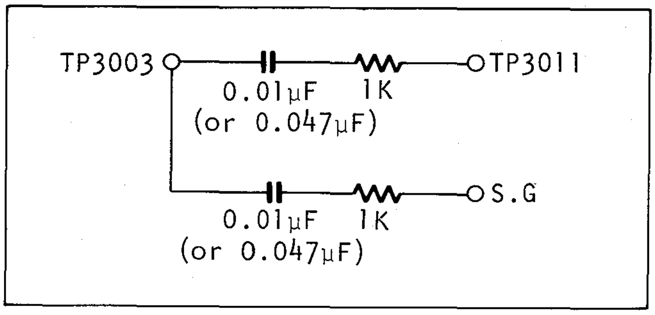

TP3003
0.01µF 1K
(or 0.047µF)
TP3011
0.01µF 1K
(or 0.047µF)
S.G

Fig. 16

2. Connect a jumper wire between Pin No.2 of P3003 and Pin No.1 of P3005.
3. Supply a color bar signal to video input on the rear panel.
4. Turn the R3019(Dark Clip) and R3020 (White Clip) fully clockwise.
5. Connect a oscilloscope to Pin No.25 of IC3004.
6. Sync Tip Frequency Adjustment
   a. Set the frequency of signal generator to 3.8MHz/100mV.
   b. Insert a video cassette and place the unit in Rec Play mode.
   c. Adjust the C3016(FM FREQ) for minimum carrier leakage at sync tip portion as shown Fig.17-a.

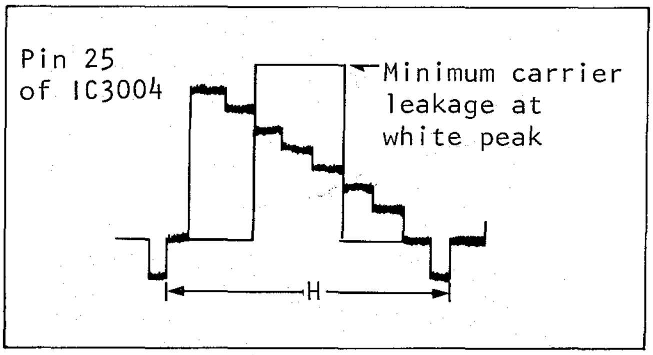

Pin 25
of IC3004
Minimum carrier
leakage at
white peak
H

Fig. 17-a

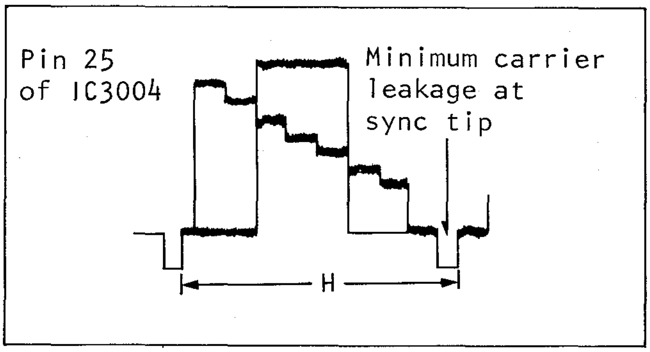

Pin 25
of IC3004
Minimum carrier
leakage at
sync tip
H

Fig. 17-b

7. Deviation Adjustment
   a. Set the frequency of signal generator to 4.8MHz.
   b. Adjust the R3009(DEVIATION) for minimum carrier leakage at white level portion as shown Fig. 17-b.

3-7. Dark Clip and White Clip Adjustment

Test Point: TP3002.
Adjustment: DARK CLIP (R3019) WHITE CLIP (R3020)

1. Insert a video cassette tape to the unit and place the Rec. Play mode.
2. Supply a color bar signal to the video input.
3. Connect the oscilloscope to TP3002 on the luminance circuit (VEP03107).
4. Adjust WHITE CLIP (R3020) and DARK CLIP (R3019) so that the overshoot and undershoot becomes as shown in Fig. 18.

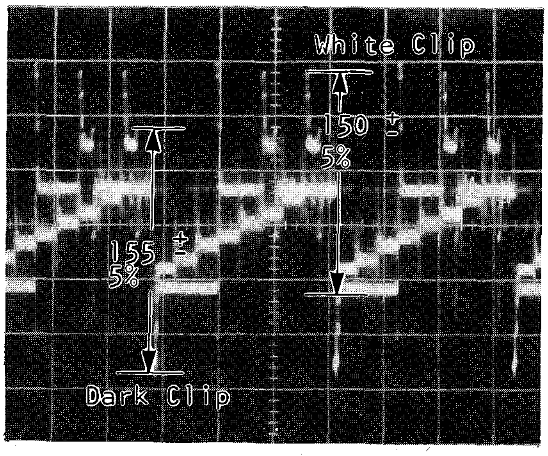

White Clip
150 ± 5%
155 ± 5%
Dark Clip

Fig. 18

3-8. Recording Current Adjustment

Test Point: TP3007, TP3008
Adjustment: REC FM LEVEL (R3022)
CHROMA REC CUR (R8049)

1. Supply a color bar signal to the Video input.
2. Place the unit in Rec. Play mode.
3. Connect the oscilloscope to TP3007 (HOT) and TP3008 (Ground) on the luminance circuit (VEP03107)
4. Close the luminance signal to turn the R3022 and adjust CHROMA REC CUR (R8049) so that the syan level in the chrominance signal becomes 32mV ± 2mVp-p as shown Fig. 19.

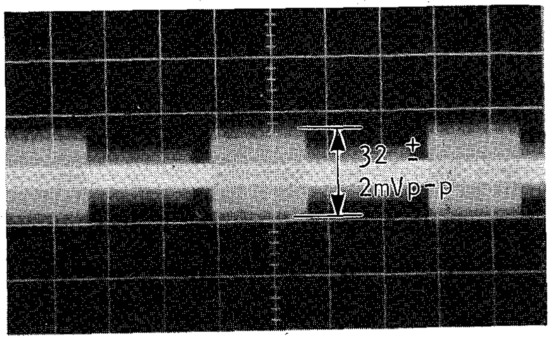


Fig. 19

5. Adjust REC FM. LEVEL (R3022) so that the level of sync tip portion becomes 150mV ± 5mVp-p as shown Fig. 20.

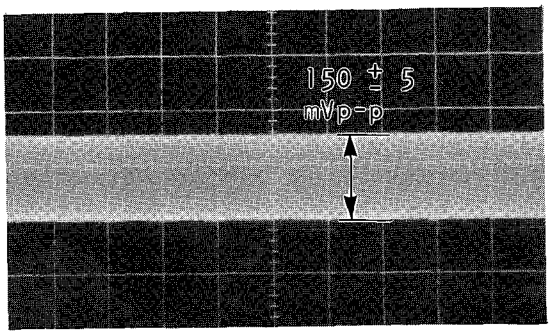


Fig. 20-a

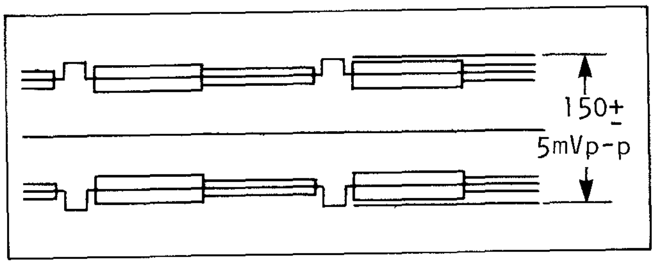


Fig.20-b

3-9. Limiter Balance and DL Limiter Balance Adjustment

Test Point: TP3012
Adjustment: LIM BAL (R3067)
DL BAL (R3084)

1. Supply a color bar signal to the video input of the unit and place the Rec. Play mode.
2. Turn the DL BAL (R3084) fully clockwise and play back the just recorded portion.
3. Connect a oscilloscope to TP3012 on luminance circuit.
4. Adjust LIM BAL (R3067) as shown below.

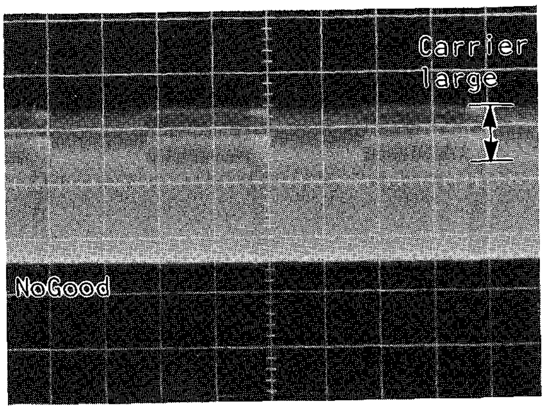


Fig. 21-a

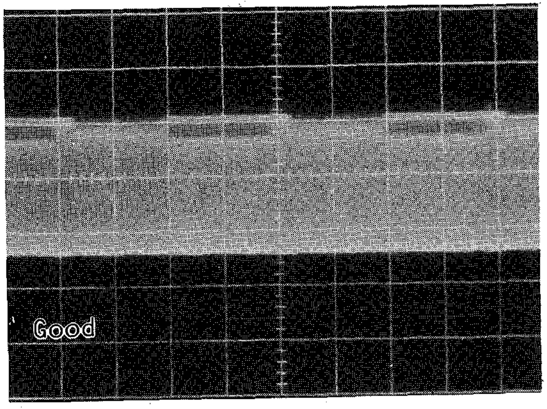


Fig. 21-b

5. Adjust DL BAL (R3084) as shown below.

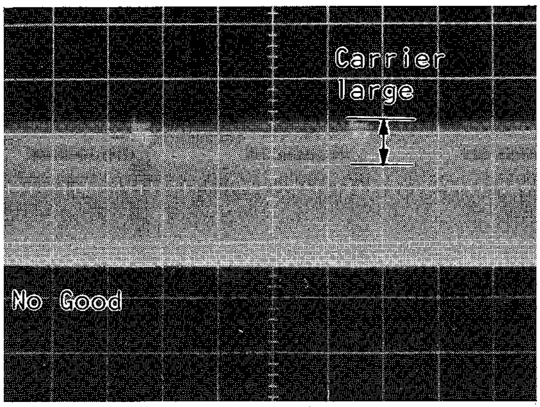

Carrier
large
No Good

Fig. 22-a

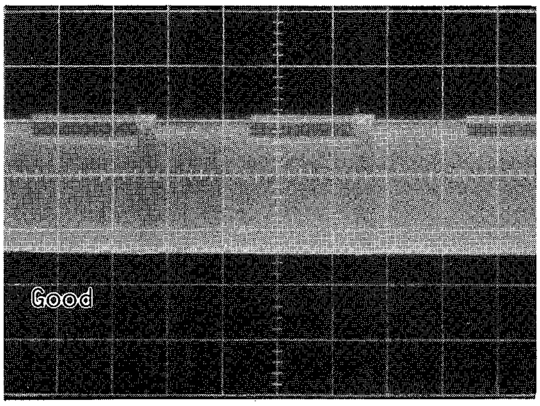


Fig. 22-b

3-10. Head Amp Peak Frequency Adjustment

Test Point: TP3009, TP3010
Adjustment: PEAK A (C3038)
PEAK B (R3037)
MIX BAL(R3208)
GAIN A (R3207)
GAIN B (R3206)

1. Set the output of sweep generator to 100mV at no load and after that set it to 10mV (-20dB)
2. Supply the above signal to the TP3005 through 39k resistor and same signal to TP3007 through 39k resistor as shown Fig. 23.

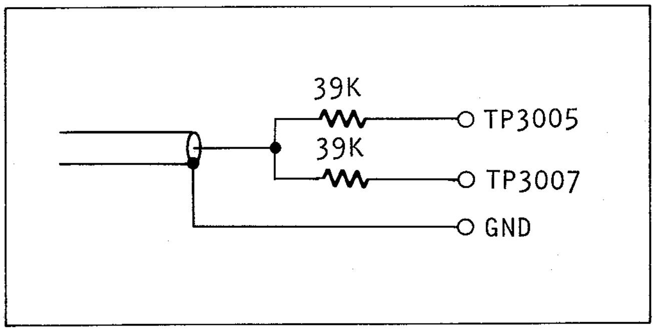

39K
TP3005
39K
TP3007
GND

Fig. 23

3. Place the play mode and adjust MIX BAL (R3208) so that the level of CH1 and CH2 becomes the same level at 2 MHz.
4. Adjust GAIN A (R3207) and GAIN B (R3207) so that the level at 5 MHz become 5 times bigger than the level at 2 MHz as shown Fig. 24.

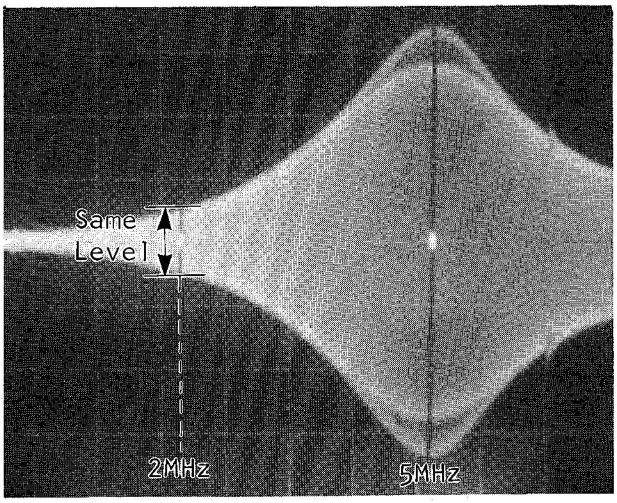

Same
Level
2MHz
5MHz

Fig. 24

5. Adjust PEAK A (C3038) and PEAK B (C3037) so that the peak on the oscilloscope becomes 4.9 MHz as shown Fig. 25.
6. Adjust again MIX (R3208) so that the level of CH A and CH B become the equal level at 2 MHz and 4.9 MHz as shown Fig. 25.

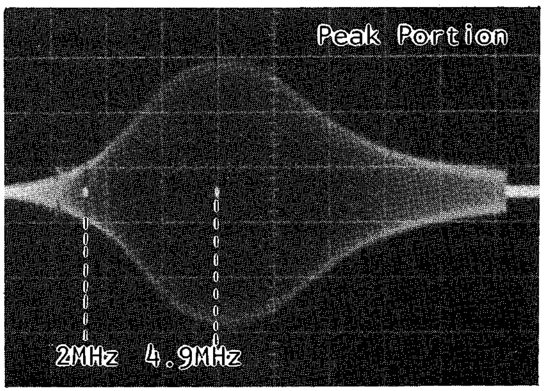

Peak Portion
2MHz
4.9MHz

Fig. 25

3-11. Head Amp Frequency Response Adjustment

Test Point: T3011, TP3014
Adjustment: GAIN A (R3207)
GAIN B (R3206)
MIX BAL(R3208)
PB IM LEVEL (R3054)

1. Set teh video signal of Sweep Generator as shown in Fig. 26.

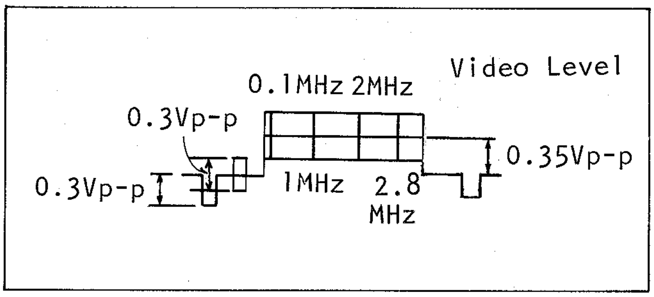


Fig. 26-a

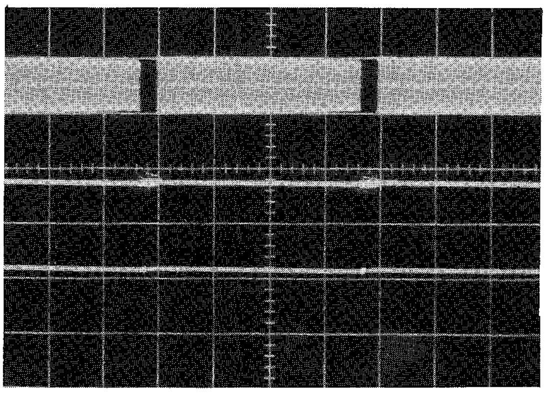


Fig. 26-b

2. Supply the above signal to the input of the unit, and make a recording a few minutes, and play back the portion just recorded.
3. Connect the oscilloscope to TP3011 on the luminance circuit (VEP03107) and adjust PB FM LEVEL (R3054) so that the level becomes 1Vp-p at TP3011.
4. Change the connect-on of oscilloscope from TP3011 to TP3014 on the same circuit board (VEP03107).
5. Adjust GAIN A (R3207) and GAIN B (R3206) so that the level at 2.8 MHz becomes 0.5 times at 0.1 MHz as shown Fig. 27.
6. Adjust MIX BAL (R3208) so that the both levels (CH A, CH B) become the equal level as shown Fig. 28.

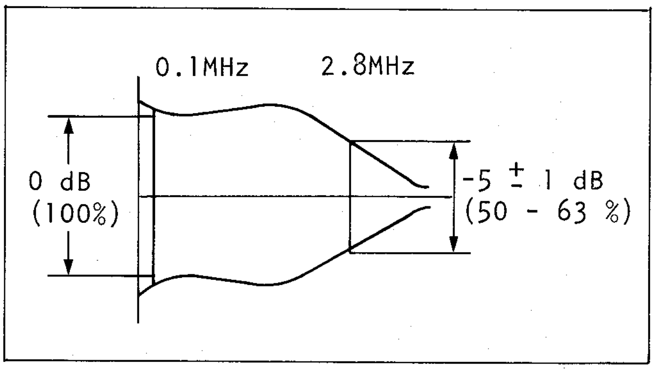


Fig. 27

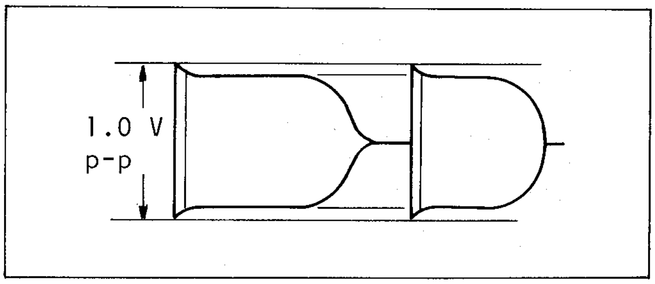


Fig. 28

3-12. Playback Level Adjustment

Test Point: TP3014
Adjustment: PB Y LEVEL (R3095)
CHROMA PB MIX (R8048)

1. Supply the color bar signal to video input of the unit.
2. Place the unit in the Rec. Play mode and make the recording a few minutes.
3. Connect the oscilloscope. to TP3014 on the luminance circuit (VEP03107).
4. Play back the portion just recorded.
5. Adjust PB Y LEVEL (R3095) so that the luminance level becomes 2.0 ± 0.1 Vp-p as shown Fig. 29.

6. Adjust CHROMA PB MIX (R8048) so that the level of syan portion becomes 1.1 ± 0,1Vp-p as shown Fig. 29.

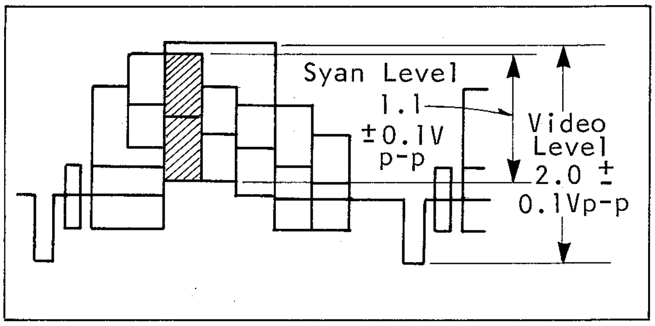


Fig. 29-a

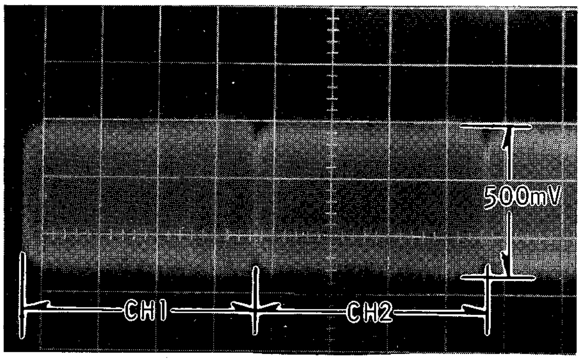


Fig. 29-b

3-13. Test Point

3-13. Test Signal Frequency Adjustment

Test Point: TP3013
Adjustment: H FREQ (R3127)

1. Place the unit in the stop mode and turn on Test Signal Switch.
2. Connect the oscilloscope to TP3013 on the luminance circuit (VEP03107)
3. Adjust H FREQ (R3127) so that the "T" portion becomes 64.0 ± 0.3 µsec as shown Fig. 29.

4. Audio Section

4-1. Bias Current Adjustment

Test Point: A/C Head Current Check Terminal
Adjustment: BIAS ADJ (C4027)

1. Do not supply any audio signal to the audio input of the unit.
2. Connect the D.V.M to A/C Head current check terminal on A/C Head P.C.B. (VJB00524).
3. Place the unit in Rec Play mode.
4. Adjust the BIAS ADJ (C4027) so that the voltage becomes 3.6 mVrms ±0.1mVrms.

4-2. Audio P.B. Level Adjustment

Test Point: Audio Output
Adjustment: P.B. GAIN (R4013)

1. Supply a audio signal (1 kH 0.3 Vrms) to audio input of the unit.
2. Place the unit in Rec. Play mode and make a recording a few minutes.
3. Connect the D.V.M. to Audio output of the unit.
4. Play back a portion just recorded.
5. During playback, adjust P.B. GAIN (R4013) so that the level of Audio output becomes 0.5V ± 0.1 Vrms.

TV Demodulator Section

MODEL: NV-2000-E,EG,EV

This section provides complete electrical adjustment procedures which may be required for TV demodulator circuit.

Test Equipment

To make adjustments completely, following equipment is required.

1. VIF Sweep Generator ... 38.9MHz
2. SIF Sweep Generator ... 5.5MHz ± 150KHz
3. Oscilloscope ... More than 10MHz
4. Trap Adjuster ... 31.9MHz/33.4MHz/40.4MHz
5. Power Supply ... 5V/12V/30V/45V
6. Jumper Wire
7. D.V.M (Digital Volt Meter)
8. Bias Box

A. VIF Sweep Adjustment

Test equipment connection

1. Connect the P705 Jig to P705.
2. Supply the +15V from Power Supply to TP712.
3. Set the channel selector to the VHF High position.
4. Connect the P704 Jig to P704.
5. Connect the jumper wire between TP710 (RF AGC) on the Tuner and Ground.
6. Connect a resistor 100Ω between TP708 and TP709.
7. Connect the Bias Box to TP704.
8, Connect the From Rec Terminal on the VIF Sweep Generator to TP707.
9. Supply the output of the Sweep Generator to TP on the Tuner.
10. Confirm that 0V is supplied to BS terminal and +15V is supplied to BV terminal of tuner.
11. Remove the bias connector from TP704.

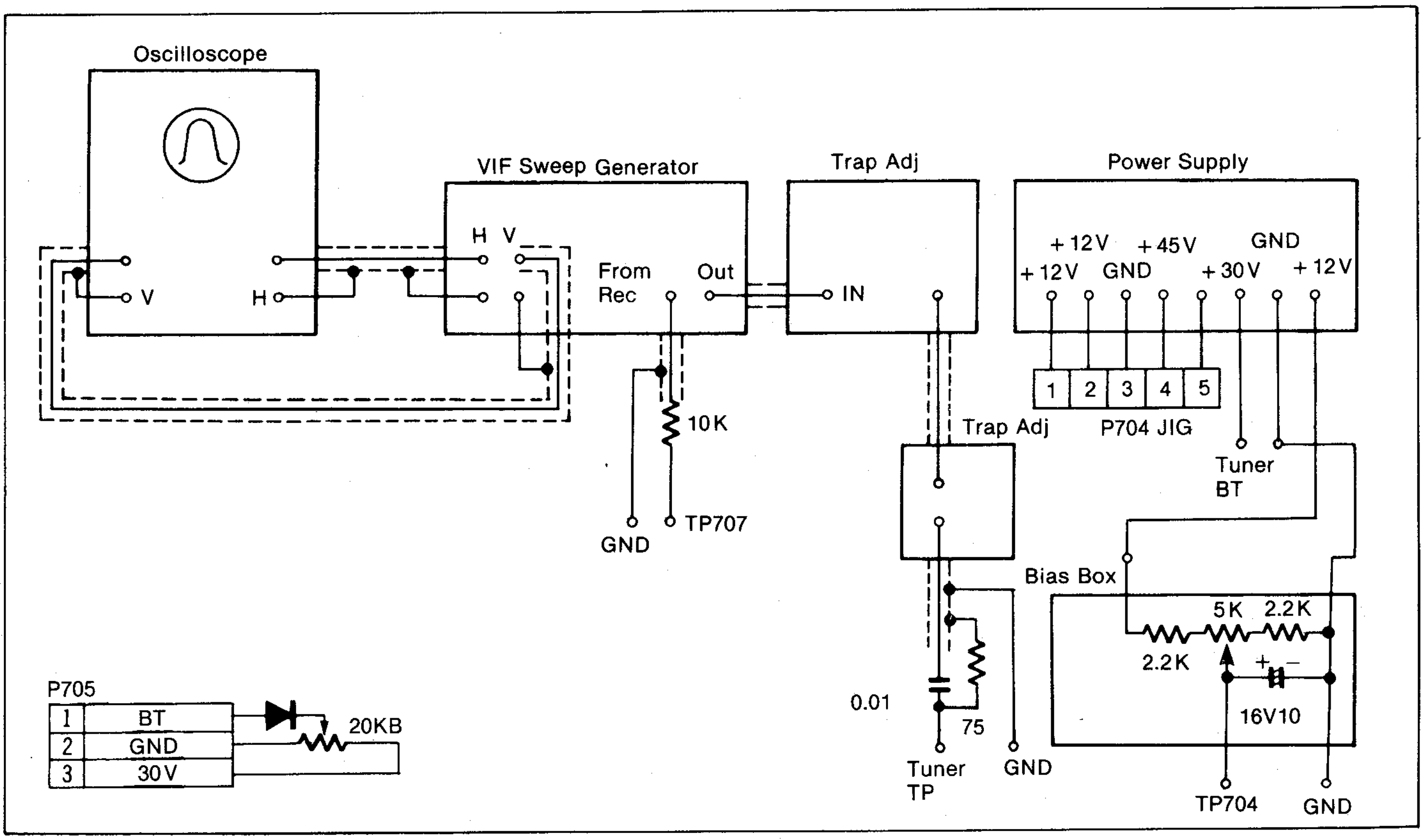
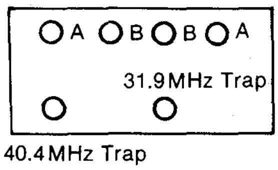

Oscilloscope
V
H
VIF Sweep Generator
H V
From Rec
Out
Trap Adj
IN
Power Supply
+12V +45V GND
+12V GND +30V +12V
1 2 3 4 5
P704 JIG
Tuner BT
10K
GND
TP707
Trap Adj
Bias Box
5K 2.2K
2.2K
16V10
0.01
75
Tuner TP
GND
TP704
GND
P705
1 BT
2 GND
3 30V
20KB

Fig. 1 Test Equipment Connection

12. Adjust the output of VIF sweep generator so that the level of sweep output becomes 1.0Vp-p.
13. Release 20dB from the attenuator of sweep generator.
14. Adjust the IF AGC bias so that the sweep wave becomes 1.0Vp-p.
15. Adjust T702 so that the attenuation of 33.4 MHz trap becomes maximum.
16. Adjust T701 so that the attenution of 40.4 MHz becomes minimum.
17. Adjust the tuner converter coil and T701 (A coil) so that the sweep output waveform becomes as shown in Fig. 3.



B Coil: B Coil adjustment is required, if VIF waveform can not meet as shown in Fig. 2.

Fig. 2 IF Filter T705

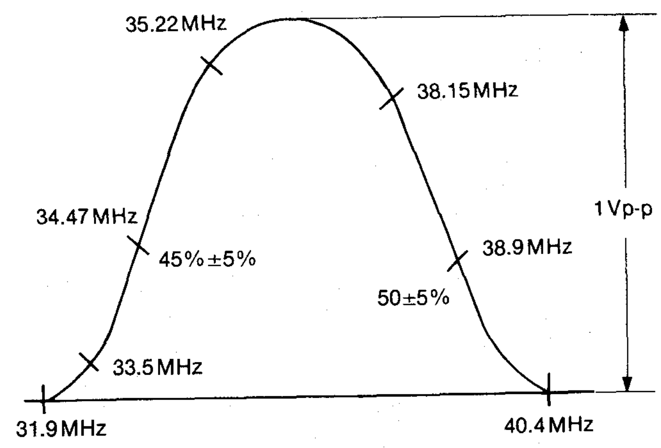


Fig. 3 VIF Waveform

B. 38.9MHz Tuning Coil Adjustment

1. Test equipment connection is same as VIF Sweep adjustment.
2. Connect the output of VIF sweep generator to TP703.
3. Adjust the sweep out so that the sweep wave becomes 0.1Vp-p as shown in Fig.4.
4. Adjust T704 so that the marker position of 38.9MHz becomes maximum as shown in Fig. 4.

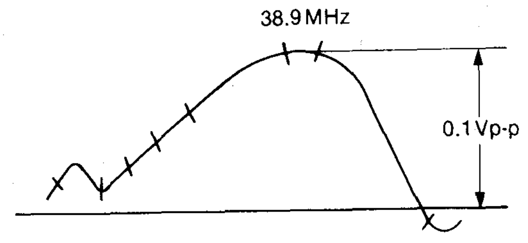


Fig. 4

5. After item 4 is completed, adjust T703 so that the marker position of 38.9MHz area becomes as shown in Fig.5.

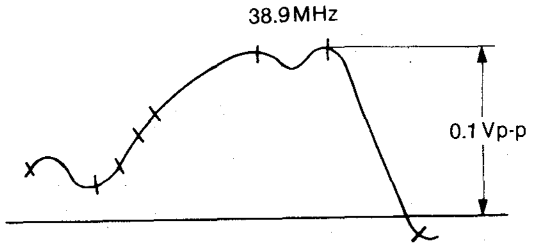


Fig. 5

C. SIF Sweep Adjustment

1. Connect the output of SIF sweep generator to TP706.
2. Connect the scope to TP701.
3. Connect the power supply to P704.

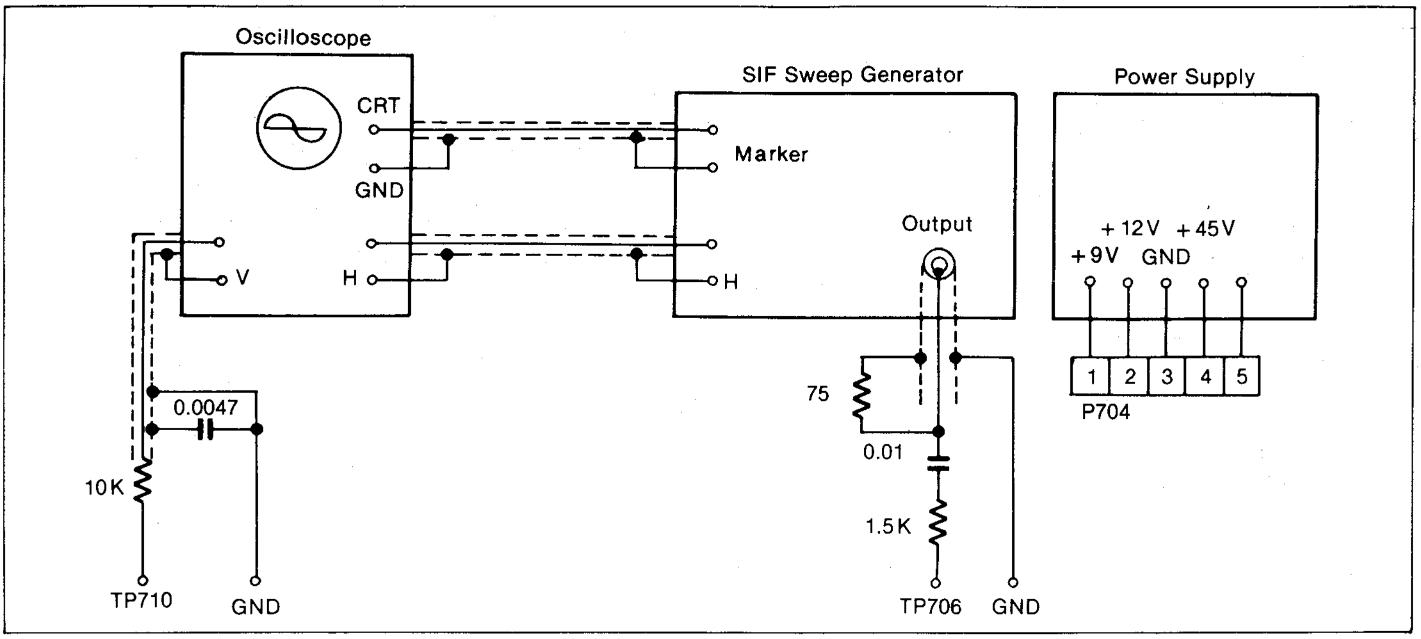

Oscilloscope
CRT
GND
V
H
SIF Sweep Generator
Marker
Output
H
Power Supply
+12V +45V
+9V GND
1
2
3
4
5
P704
0.0047
10K
TP710
GND
75
0.01
1.5K
TP706
GND

Fig. 6 Test Equipment Connection

4. Set the sweep output to 250 mVr.m.s, 75Ω unbalanced.
5. Adjust T705 for maximum peak-to-peak amplitude of response "A" curve as shown in Fig. 7.
6. Confirm that the level between the 150KHz marker position is more than 2.0V.

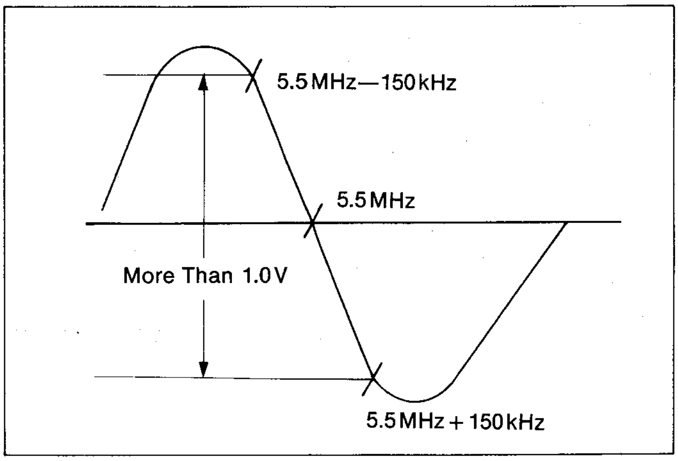

5.5MHz—150kHz
5.5MHz
More Than 1.0V
5.5MHz+150kHz

Fig. 7 Response "A" Curve

D. AFC Adjustment

1. Connect CW Oscillator to Tuner TP and supply 38.9MHz CW signal.
2. Adjust the 38.9MHz CW signal for satulation level at TP702.
3. Connect the VTVM to Tuner AFC terminal.
4. Set the AFC switch "ON".
5. Adjust T703 so that the level at AFC terminal becomes 6.5 ± 0.3V.
6. Change the frequency of CW oscillator ± 100KHz, centerd at 38.9MHz and confirm that the change of AFC voltage is more than 2V.

E. Confirmation of Video level/Adjustment of burst level

1. Supply the PAL Standard Colour Bar signal to ANT.
2. Connect the resistor 75Ω to Video out.
3. Connect the oscilloscope to TP705.
4. Confirm that the video level at TP702 is 1.0 ± 0.2Vp-p as shown in Fig.8.
5. Adjust R718 so that the burst level becomes 200 ± 10mVp-p as shown in Fig. 8.

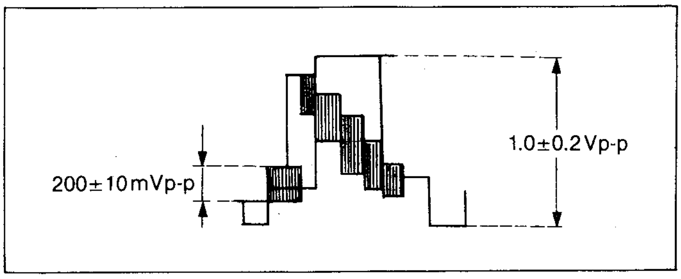

200±10mVp-p
1.0±0.2Vp-p

Fig. 8 Video and Burst Levels

TV Demodulator Section

MODEL: NV-2000-B

This section provides complete electrical adjustment procedures which may be required for TV demodulator circuit.

Test Equipment

To make adjustments completely, following equipment is required.

1.	VIF Sweep Generator	39.5MHz
2.	SIF Sweep Generator	6.0MHz+150KHz
3.	Oscilloscope	More than 10MHz
4.	Trap Adjuster	31.5MHz/ 33.5MHz/ 41.5MHz
5.	Power Supply	5V/12V/30V/45V
6.	Jumper Wire	
7.	D.V.M (Digital Volt Meter)	
8.	Bias Box	

A. VIF Sweep Adjustment

Test equipment connection

1. Connect the P705 Jig to P705.
2. Supply the +15V from Power Supply to TP712.
3. Set the channel selector to the VHF High position.
4. Connect the P704 Jig to P704.
5. Connect the jumper wire between TP710 (RF AGC) on the Tuner and Ground.
6. Connect a resistor 100Ω between TP708 and TP709.
7. Connect the Bias Box to TP704.
8. Connect the From Rec Terminal on the VIF Sweep Generator to TP707.
9. Supply the output of the Sweep Generator to TP on the Tuner.
10. Confirm that 0V is supplied to BS terminal and +15V is supplied to BV terminal of tuner.
11. Remove the bias connector from TP704.

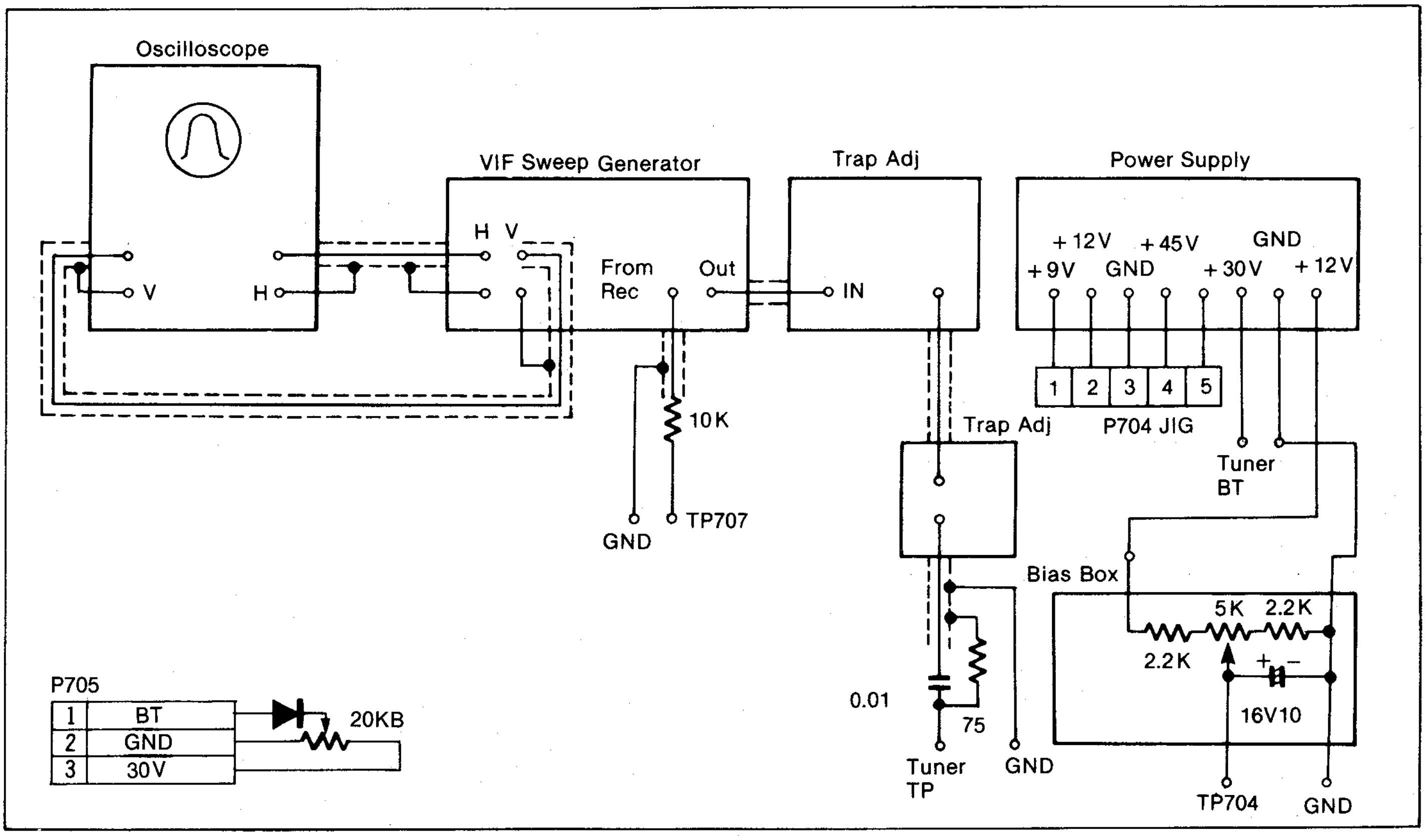
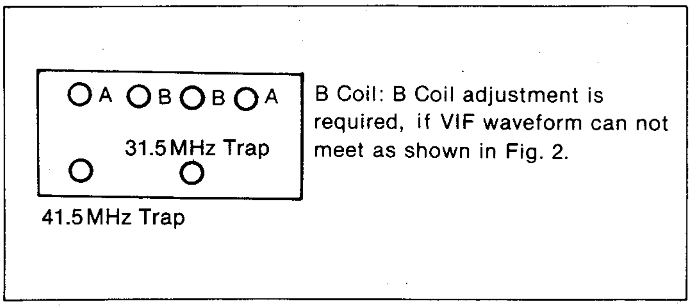

Oscilloscope
V
H
VIF Sweep Generator
H
V
From Rec
Out
Trap Adj
IN
Power Supply
+12V
+45V
GND
+9V
GND
+30V
+12V
1
2
3
4
5
P704 JIG
Tuner BT
10K
GND
TP707
Trap Adj
Bias Box
5K
2.2K
2.2K
16V10
0.01
75
Tuner TP
GND
TP704
GND
P705
1 BT
2 GND
3 30V
20KB

Fig. 1 Test Equipment Connection

12. Adjust the output of VIF sweep generator so that the level of sweep output becomes 1.0Vp-p.
13. Release 20dB from the attenuator of sweep generator.
14. Adjust the IF AGC bias so that the sweep wave becomes 1.0Vp-p.
15. Adjust T702 so that the attenuation of 33.5MHz trap becomes maximum.
16. Adjust T701 (41.5MHz trap) so that the attenuation of 41.5MHz becomes minimum.
17. Adjust the tuner converter coil and T701 (A coil) so that the sweep output waveform becomes as shown in Fig. 3.



B Coil: B Coil adjustment is required, if VIF waveform can not meet as shown in Fig. 2.

Fig. 2 IF Filter T705

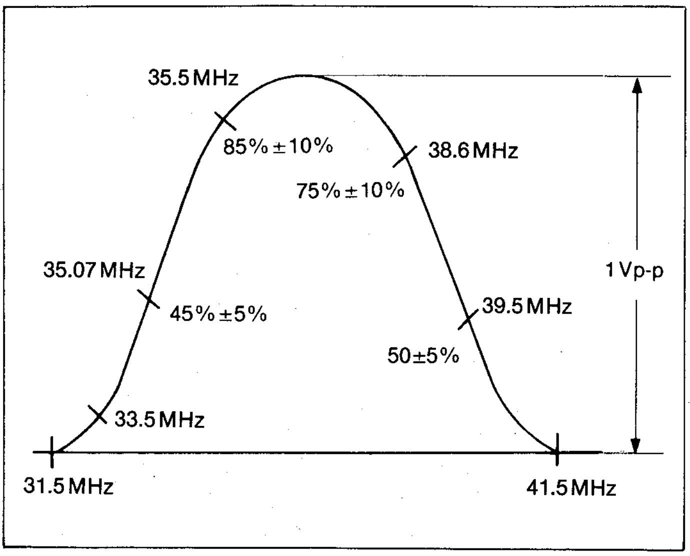


Fig. 3 VIF Waveform

B. 39.5MHz Tuning Coil Adjustment

1. Test equipment connection is same as VIF Sweep adjustment.
2. Connect the output of VIF sweep generator to TP703.
3. Adjust the sweep out so that the sweep wave becomes 0.1Vp-p as shown in Fig. 4.
4. Adjust T704 so that the marker position of 39.5MHz becomes maximum as shown in Fig. 4.

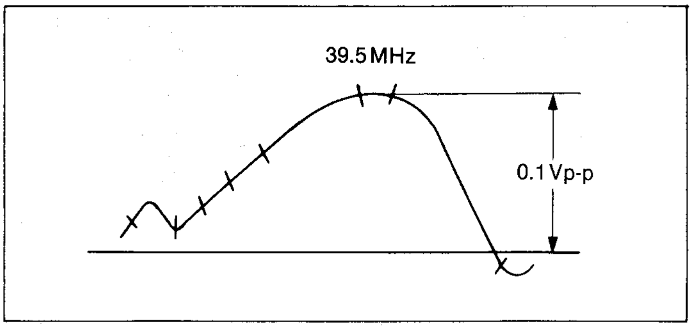


Fig. 4

5. After item 4 is completed, adjust T703 so that the marker position of 39.5MHz area becomes as shown in Fig. 5.

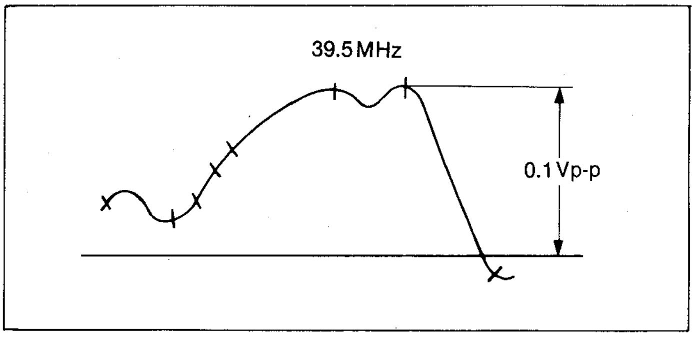


Fig. 5

C. SIF Sweep Adjustment

1. Connect the output of SIF sweep generator to TP706.
2. Connect the scope to TP701.
3. Connect the power supply to P704.

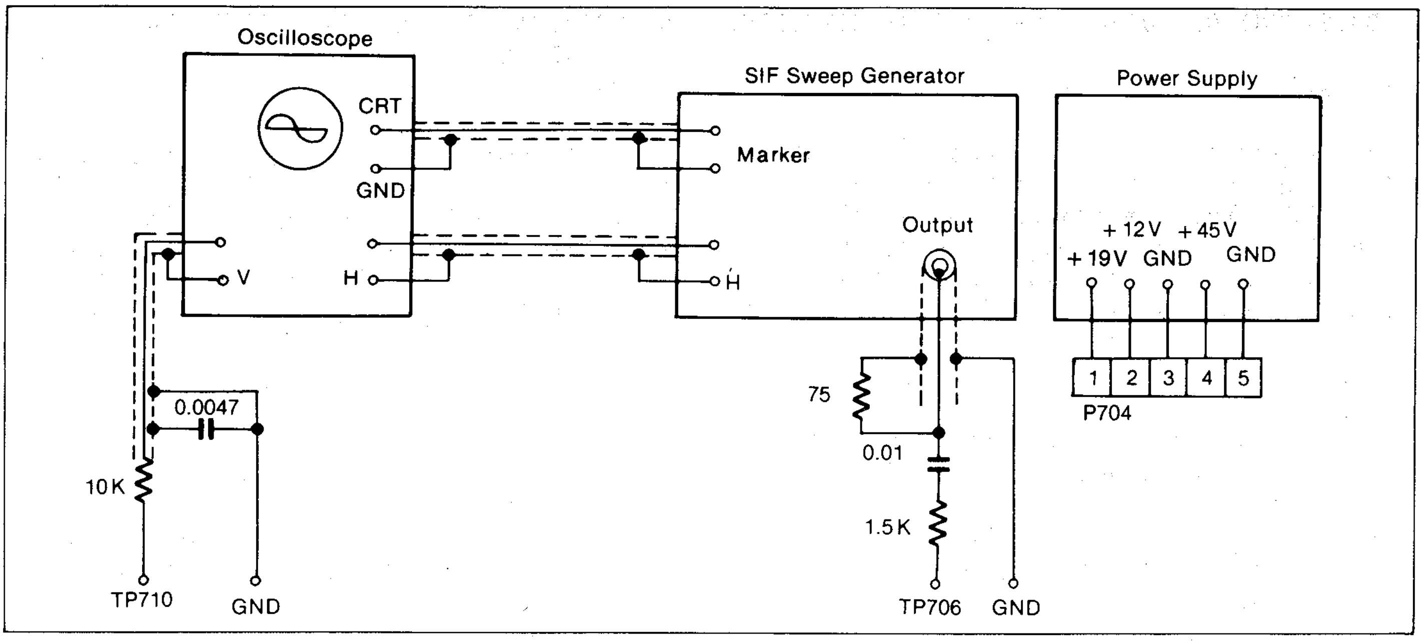

Oscilloscope
CRT
GND
V
H
SIF Sweep Generator
Marker
Output
H
Power Supply
+12V
+45V
+19V
GND
GND
1
2
3
4
5
P704
0.0047
10K
TP710
GND
75
0.01
1.5K
TP706
GND

Fig. 6 Test Equipment Connection

4. Set the sweep output to 250 mVr.m.s, 75Ω unbalanced.
5. Adjust T705 for maximum peak-to-peak amplitude of response "A" curve as shown in Fig. 7.
6. Confirm that the level between the 150kHz marker position is more than 2.0V.

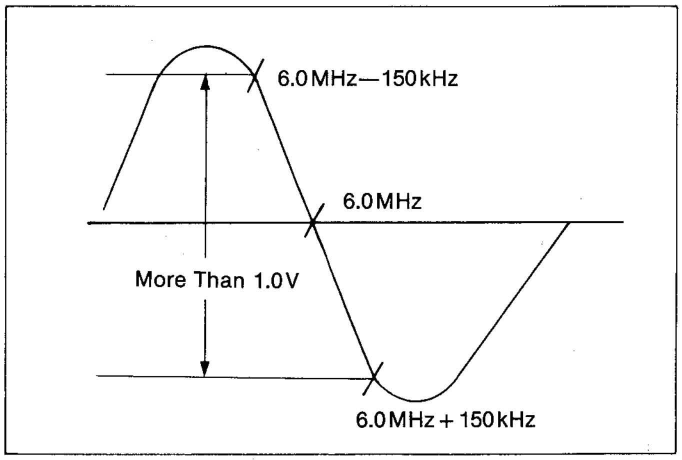

6.0MHz—150kHz
6.0MHz
More Than 1.0V
6.0MHz+150kHz

Fig. 7 Response "A" Curve

D. AFC Adjustment

1. Connect CW Oscillator to Tuner TP and supply 39.5MHz CW signal.
2. Adjust the 39.5MHz CW signal for satulation level at TP702.
3. Connect the VTVM to Tuner AFC terminal.
4. Set the AFC switch "ON".
5. Adjust T703 so that the level at AFC terminal becomes 6.5 ± 0.3V.
6. Change the frequency of CW oscillator ±100KHz, centered at 39.5MHz and confirm that the change of AFC voltage is more than 2V.

E. Confirmation of Video level/Adjustment of burst level

1. Supply the PAL Standard Colour Bar signal to ANT.
2. Connect the resistor 75Ω to Video out.
3. Connect the oscilloscope to TP705.
4. Confirm that the video level at TP702 is 1.0 ± 0.2Vp-p as shown in Fig. 8.
5. Adjust R718 so that the burst level becomes 240 ± 10mVp-p as shown in Fig. 8.

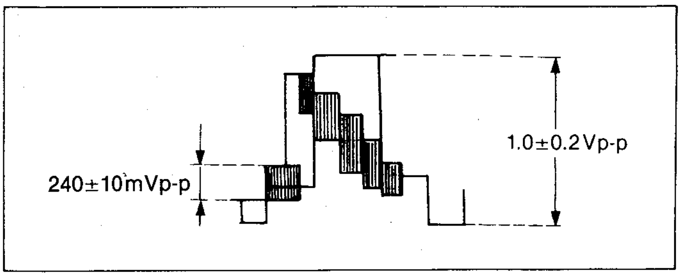

1.0±0.2Vp-p
240±10mVp-p

Fig. 8 Video and Burst Levels

ADJUSTMENT OF MODEL ENC-17352 RF CONVERTER

1. Rating

1-1. Channel : CH36 (591.25MHz)
1-2. Supply Voltage : 9 ± 0.1 V
1-3. RF output impedance: 75Ω unbal
1-4. Video Input Voltage: 1 ± 0.2 Vp-p
1-5. Audio Input Voltage: 0.5 ± 0.1 Vrms
1-6. Sub-Carrier Freq. : 6000 kHz

2. Adjustment

2-1. Adjust the variable resistor (VR4) in order to get 591.25 MHz oscillator requency.
2-2. Adjust the variable resistor (VR2) in order to get 73 ± 3 dB video RF output level.
2-3. Adjust the variable resistor (VR1) in order to get 70^{+5}_{-10} % video modulation ratio using standard color bar pattern.
2-4. Adjust the trans (T1) in order to get 6.0 MHz oscillator frequency.
2-5. Adjust the trans (T2) in order to get sound output level -14 ± 3 dB against video output level.
2-6. Adjust the variable resistor (VR3) in order to get 70 ± 10 % sound modulation ratio using 1 kHz sine wave.

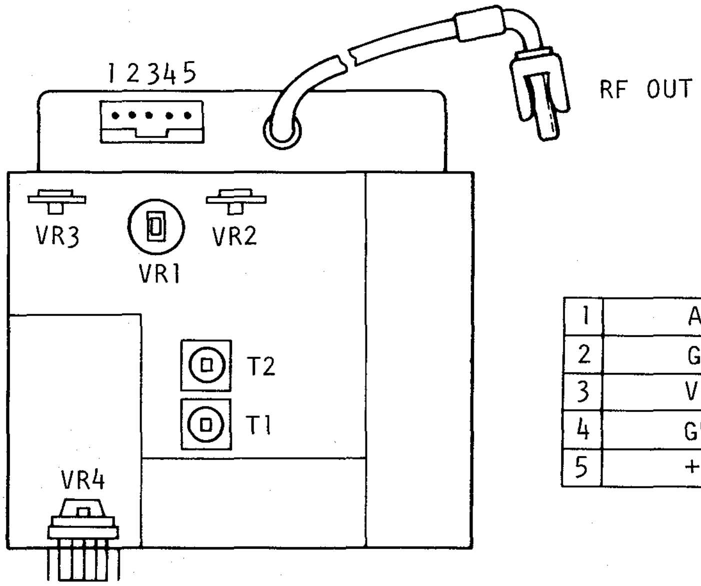
ADJUSTMENT OF MODEL ENC-17351/ENC-17353 RF CONVERTER

1. Rating

1-1. Channel : CH36(591.25MHz)
1-2. Supply Voltage : 9 ± 0.1V
1-3. RF output impedance : 75Ω unbal
1-4. Video Input Voltage : 1 ± 0.2 Vp-p
1-5. Audio Input Voltage : 0.5 ± 0.1 Vrms
1-6. Sub-Carrier Freq. : 5500 kHz

2. Adjustment

2-1. Adjust the variable resistor (VR4) in order to get 591.25 MHz oscillator requency
2-2. Adjust the variable resistor (VR2) in order to get 73 ± 3 dB video-RF output level.
2-3. Adjust the variable resistor (VR1) in order to get 70^{+5}_{-10} % video modulation ratio using standard color bar pattern.
2-4. Adjust the trans (T2) in order to get 5.5 MHz oscillator frequency.
2-5. Adjust the trans (T1) in order to get sound output level -14 ± 3 dB against video output level.
2-6. Adjust the variable resistor (VR3) in order to get 70 ± 10 % sound modulation ratio using 1 kHz sine wave.

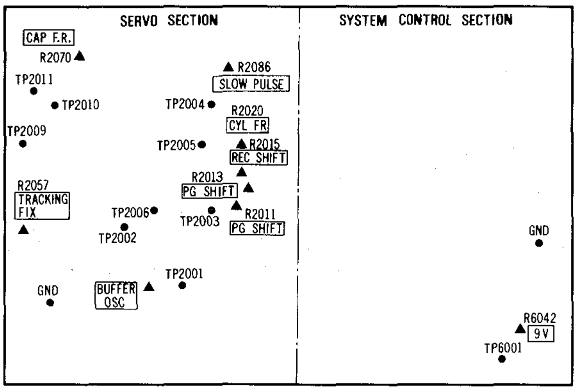


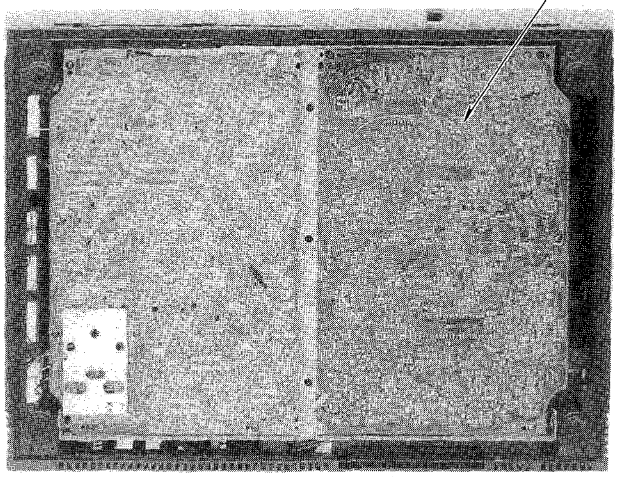
1	AUDIO IN
2	GND
3	VIDEO IN
4	GND
5	+B

LOCATION OF TEST POINTS AND CONTROLS (1)

SERVO & SYSTEM CONTROL P.C.B.

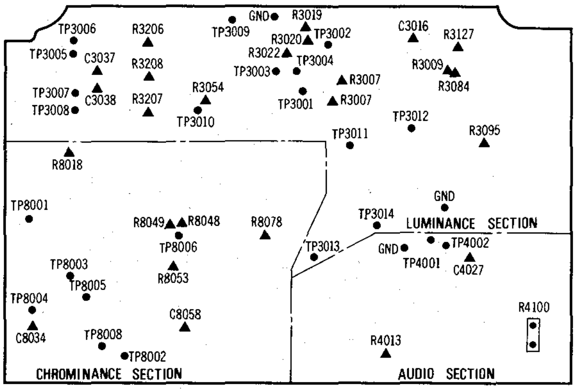
VEP02115

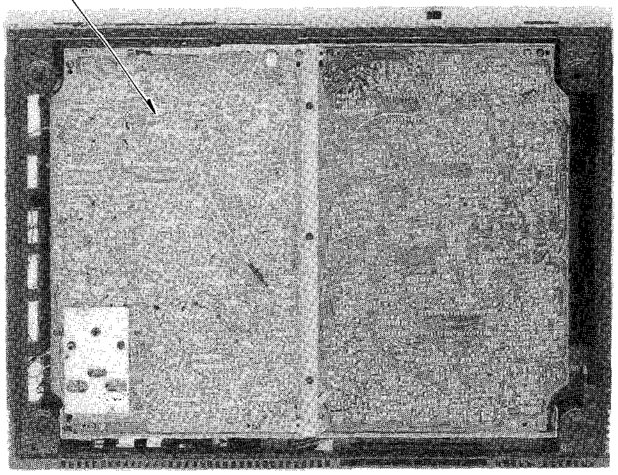

SERVO SECTION
SYSTEM CONTROL SECTION
CAP F.R.
R2070
R2086
SLOW PULSE
TP2011
TP2010
TP2004
R2020
CYL FR
TP2009
TP2005
R2015
REC SHIFT
R2013
PG SHIFT
R2057
TRACKING FIX
TP2006
TP2003
R2011
PG SHIFT
TP2002
GND
TP2001
BUFFER OSC
GND
R6042
9V
TP6001


Servo & System Control P.C.B. VEP02115

AUDIO, LUMINANCE & CHROMINANCE P.C.B.

VEP03107

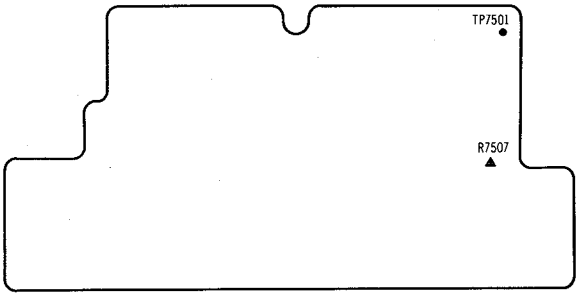

GND
R3019
TP3006
R3206
TP3009
R3020
TP3002
C3016
R3127
TP3005
C3037
R3208
R3022
TP3004
R3009
TP3003
R3007
R3084
TP3007
C3038
R3207
R3054
TP3001
R3007
TP3008
TP3010
TP3012
TP3011
R3095
R8018
GND
TP8001
TP3014
LUMINANCE SECTION
R8049
R8048
R8078
TP8006
TP3013
GND
TP4002
TP4001
C4027
TP8003
R8053
TP8005
TP8004
R4100
C8058
C8034
TP8008
R4013
TP8002
CHROMINANCE SECTION
AUDIO SECTION

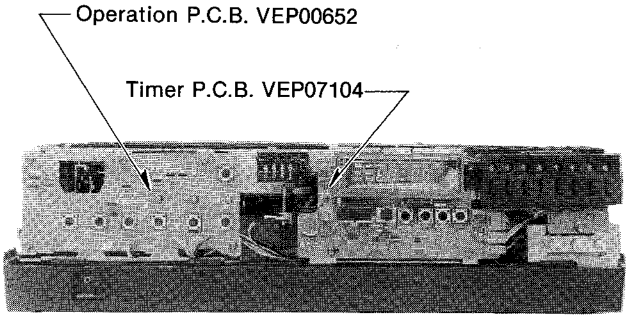

Audio, Luminance & Chrominance P.C.B. VEP03107

LOCATION OF TEST POINTS AND CONTROLS (2)

TIMER P.C.B.

VEP07104

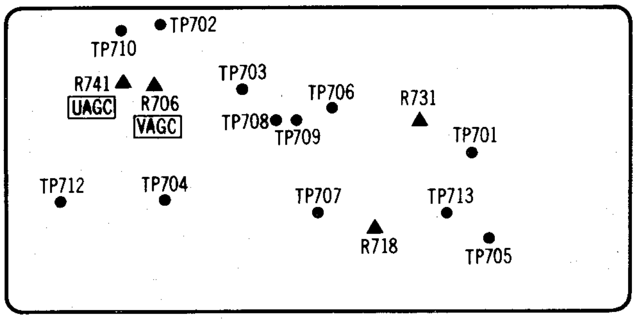

TP7501
R7507

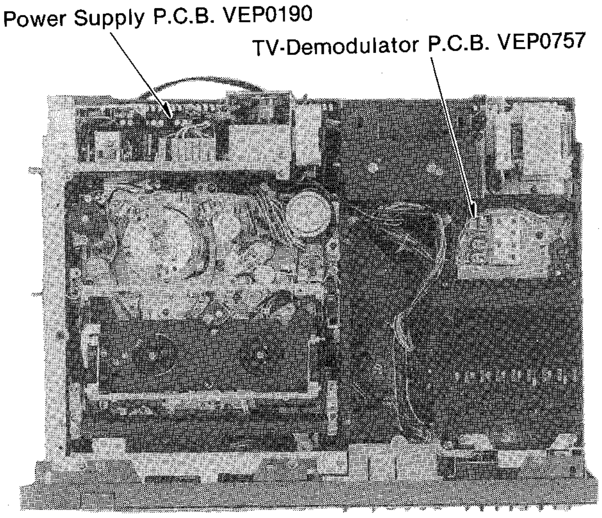

Operation P.C.B. VEP00652

Timer P.C.B. VEP07104

TV-DEMODULATOR P.C.B.

VEP0759


TP702
TP710
R741
UAGC
R706
VAGC
TP703
TP706
TP708
TP709
R731
TP701
TP712
TP704
TP707
TP713
R718
TP705


Power Supply P.C.B. VEP0190

TV-Demodulator P.C.B. VEP0757

ORDER NO. VRD-8104-533

Service Manual

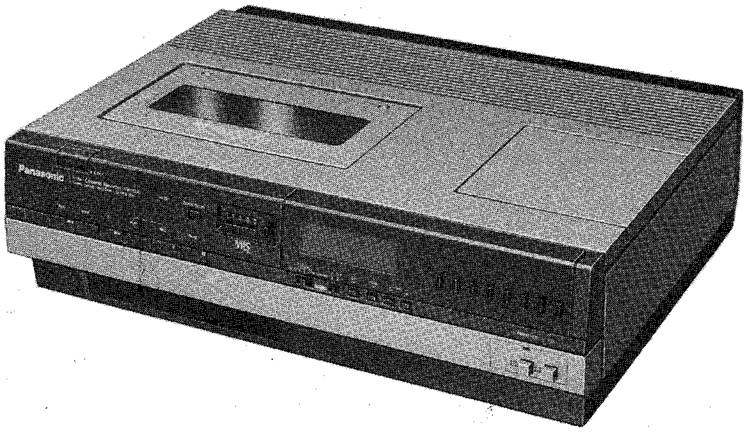
Video Cassette Recorder

Panasonic VHS

Vol. 3

NV-2000 -E -B -EG -EV

Block Diagrams
Schematic Diagrams



SPECIFICATIONS

Power Source:	110, 120, 220, 240V AC 50/60Hz
Power Consumption:	Approx. 38 watts
Television System:	CCIR: 625 lines, 50 fields PAL colour signal (NV-2000-E, -B, -EG, -EV) D.D.R-SECAM signal (NV-2000-EG)
Video Recording System:	2 rotary heads, helical scanning system Luminance: FM azimuth recording Colour signal: converted subscarrier phase shift recording
Audio Track:	1 track
Tape Format:	Tape width 12.7mm high density tape
Tape Speed:	23.39mm/s
Record/Playback Time:	240 min. with NV-E240
FF/REW Time:	Less than 7.5 min. with NV-E240
Heads:	Video: 2 rotary heads Audio/Control: 1 stationary head Erase: 1 full track erase
Input Level:	Video: VIDEO IN connector (BNC) 1.0Vp-p, 75Ω unbalanced Audio: LINE IN jack −20dB, 100kΩ unbalanced
Output Level:	Video: VIDEO OUT connector (BNC) 1.0Vp-p, 75Ω unbalanced Audio: LINE OUT jack −6dB, 600Ω unbalanced RF Modulated: NV-2000-E, -B, -EG, -EV, UHF channel 36 (±4) 75Ω unbalanced
Weight:	10.0kg
Dimensions:	480(W) × 136(H) × 365(D)mm
Accessory Supplied:	1 pc. DIN-DIN coaxial cable, VJA0130
Optional Accessories:	Video cassette tape: NV-E240 Approx. 344m, 240 min. NV-E180 Approx. 258m, 180 min. NV-E120 Approx. 174m, 120 min. NV-E60 Approx. 88m, 60 min. Video Camera, WV-2600E, WV-3000E, WV-3200E

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic®

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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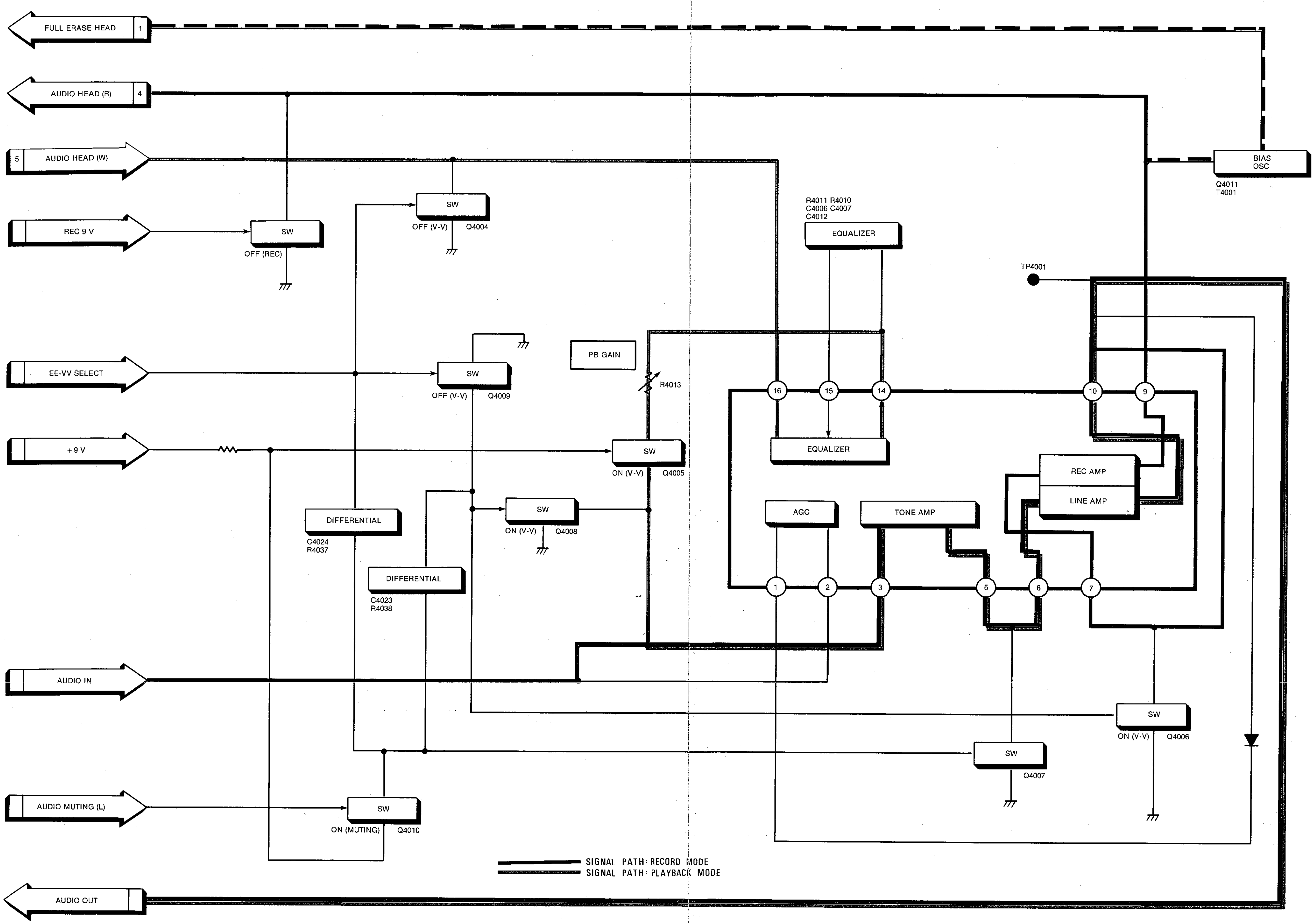
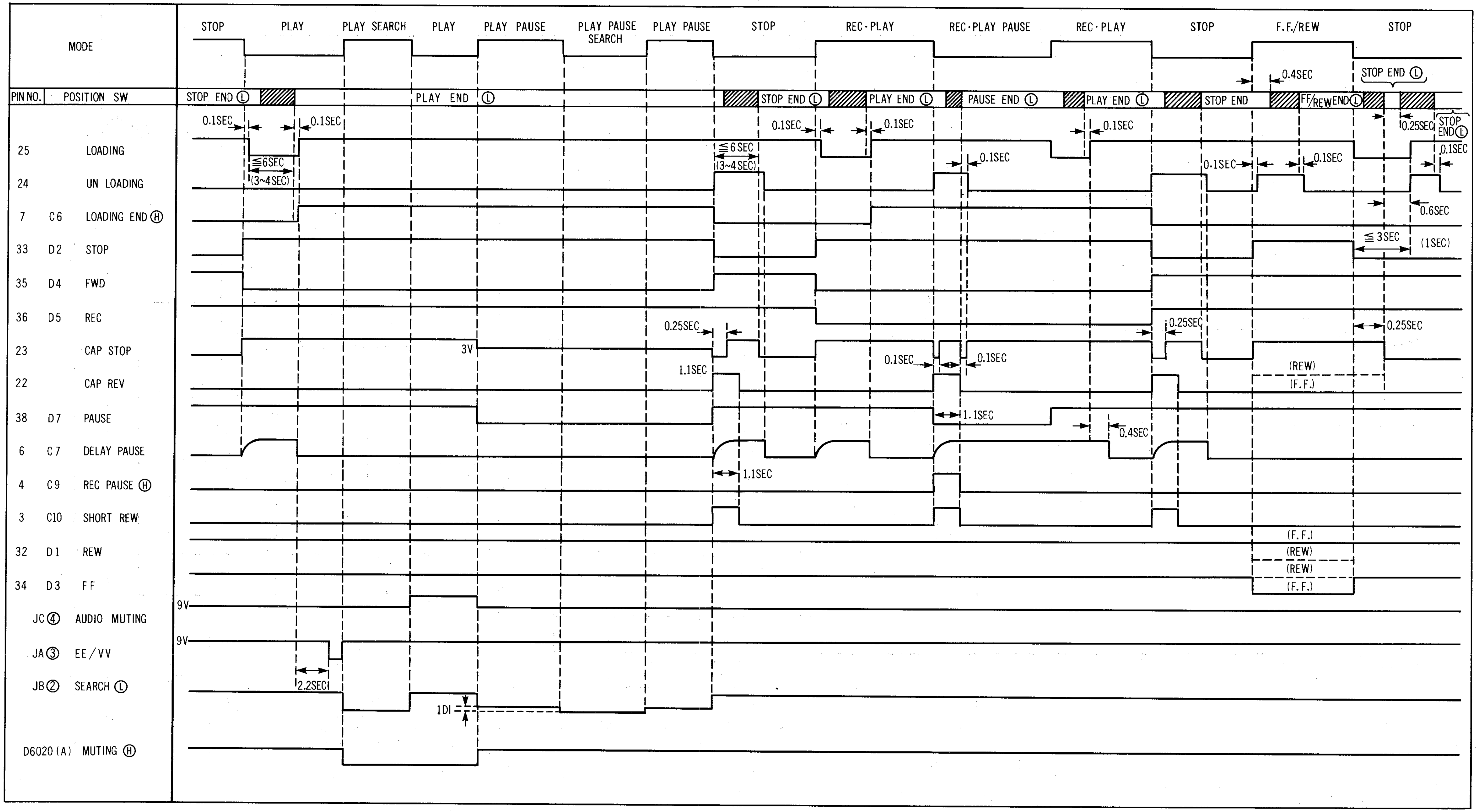
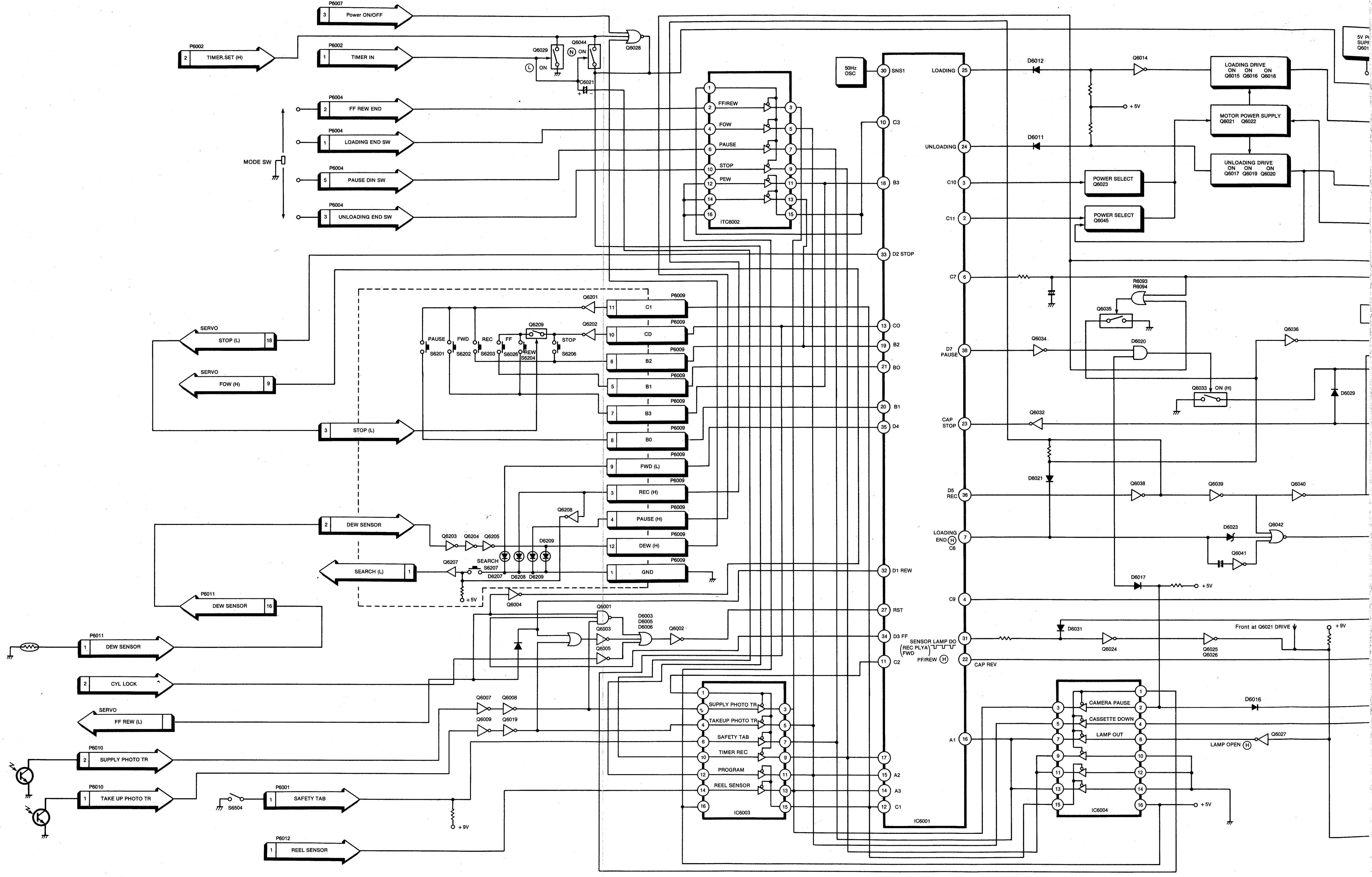
AUDIO BLOCK DIAGRAM


FULL ERASE HEAD
1
AUDIO HEAD (R)
4
5
AUDIO HEAD (W)
REC 9 V
EE-VV SELECT
+9 V
AUDIO IN
AUDIO MUTING (L)
AUDIO OUT
SW
OFF (REC)
SW
OFF (V-V)
Q4004
SW
OFF (V-V)
Q4009
PB GAIN
R4013
SW
ON (V-V)
Q4005
SW
ON (V-V)
Q4008
DIFFERENTIAL
C4024
R4037
DIFFERENTIAL
C4023
R4038
SW
ON (MUTING)
Q4010
R4011 R4010
C4006 C4007
C4012
EQUALIZER
EQUALIZER
AGC
TONE AMP
REC AMP
LINE AMP
TP4001
BIAS
OSC
Q4011
T4001
16
15
14
10
9
1
2
3
5
6
7
SW
Q4007
SW
ON (V-V)
Q4006
SIGNAL PATH: RECORD MODE
SIGNAL PATH: PLAYBACK MODE

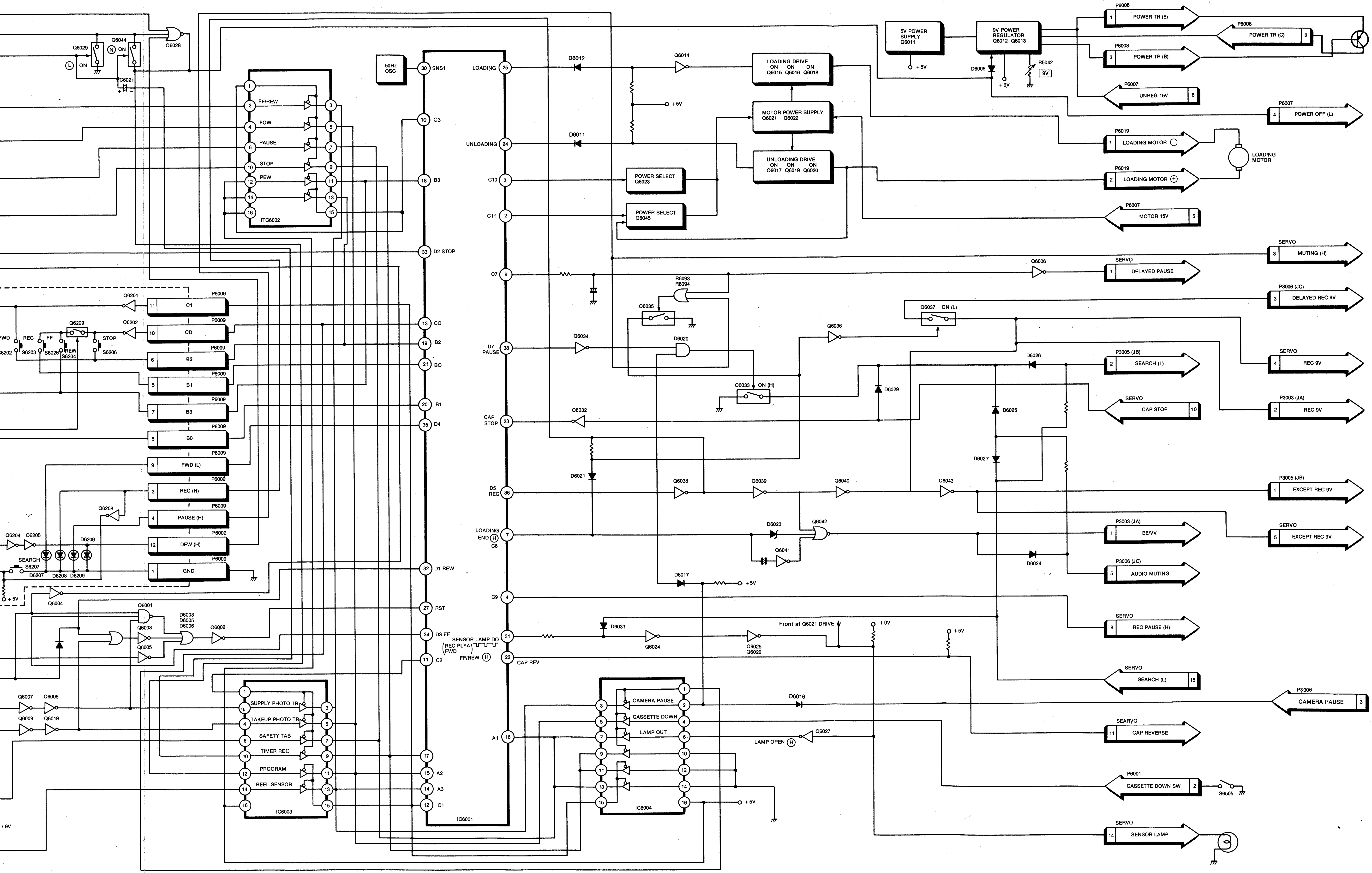
MICRO COMPUTER (IC6001: MN1405VQ) TIMING CHART


MODE
STOP
PLAY
PLAY SEARCH
PLAY
PLAY PAUSE
PLAY PAUSE SEARCH
PLAY PAUSE
STOP
REC·PLAY
REC·PLAY PAUSE
REC·PLAY
STOP
F.F./REW
STOP
PIN NO.
POSITION SW
STOP END Ⓛ
PLAY END Ⓛ
STOP END Ⓛ
PLAY END Ⓛ
PAUSE END Ⓛ
PLAY END Ⓛ
STOP END
FF/REW END Ⓛ
STOP END Ⓛ
STOP END Ⓛ
0.4SEC
0.1SEC
0.25SEC
0.6SEC
≦3SEC
(1SEC)
≦6SEC
(3~4SEC)
1.1SEC
1.1SEC
2.2SEC
3V
1DI
9V
9V
(REW)
(F.F.)
25 LOADING
24 UN LOADING
7 C6 LOADING END Ⓗ
33 D2 STOP
35 D4 FWD
36 D5 REC
23 CAP STOP
22 CAP REV
38 D7 PAUSE
6 C7 DELAY PAUSE
4 C9 REC PAUSE Ⓗ
3 C10 SHORT REW
32 D1 REW
34 D3 FF
JC④ AUDIO MUTING
JA③ EE/VV
JB② SEARCH Ⓛ
D6020 (A) MUTING Ⓗ

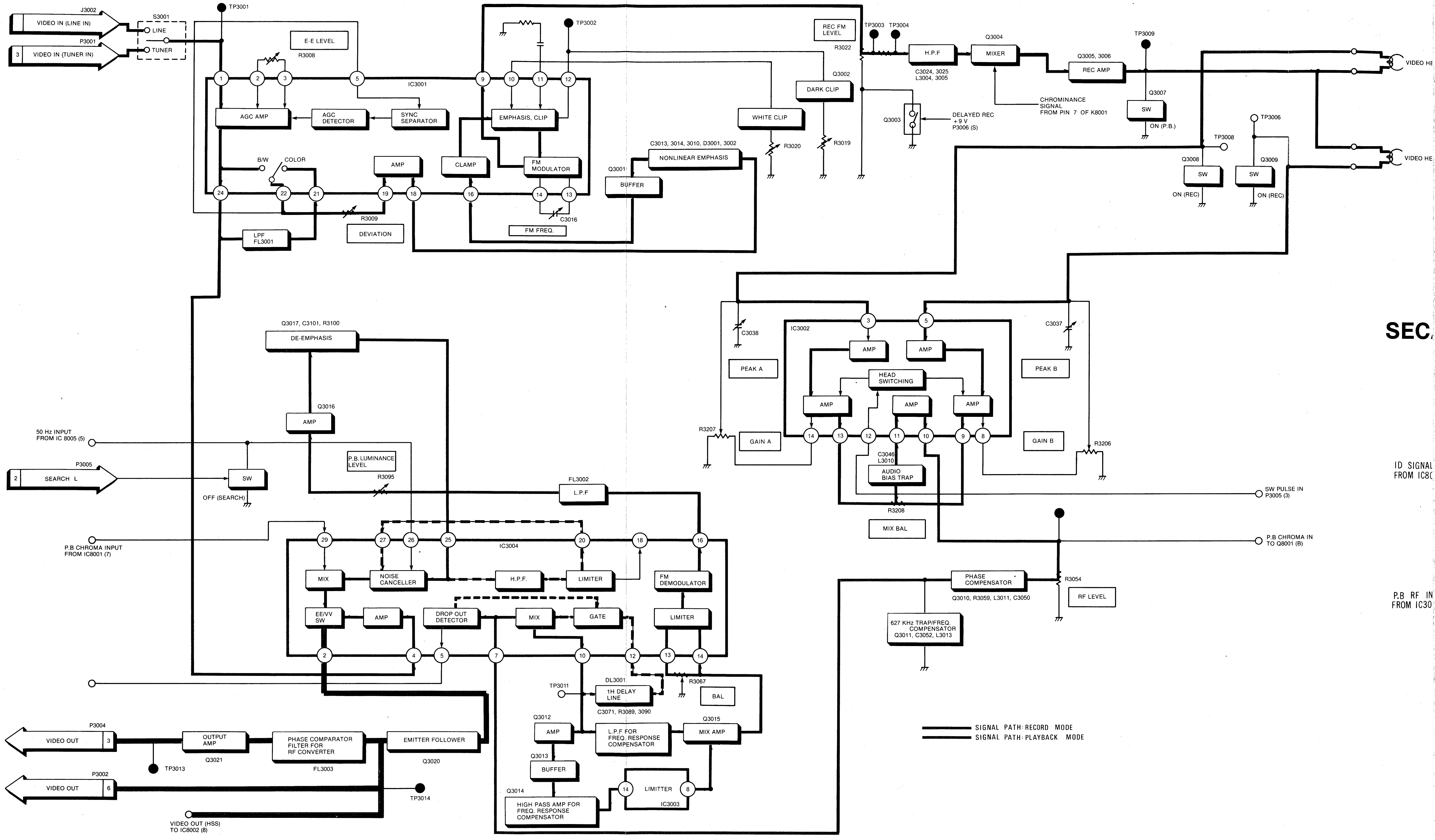
SYSTEM CONTROL BLOCK DIAGRAM



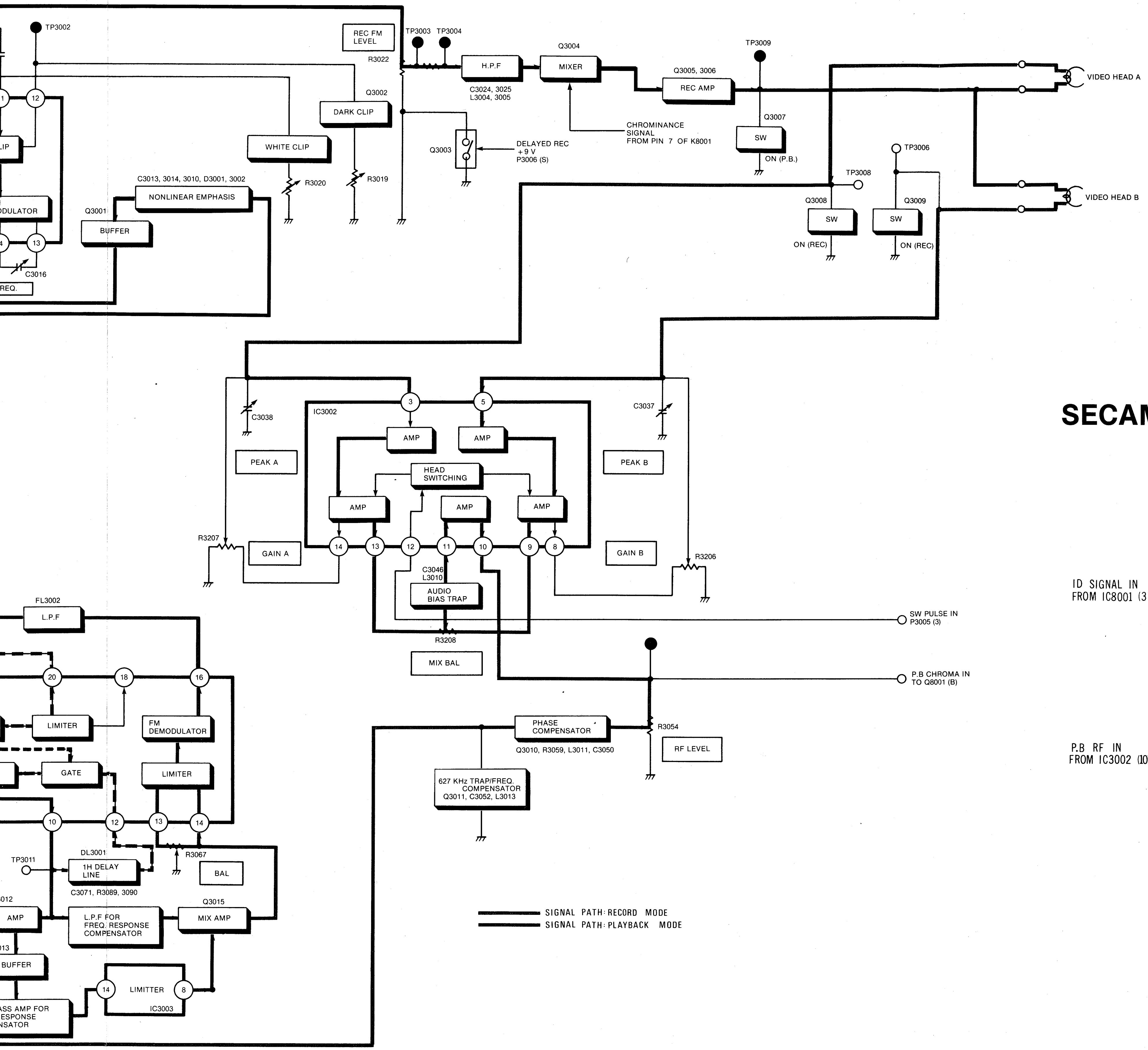
P6007
3 Power ON/OFF
P6002
2 TIMER SET (H)
P6002
1 TIMER IN
Q6029
Q6044
L ON
N ON
Q6028
C6021
P6004
2 FF REW END
P6004
1 LOADING END SW
MODE SW
P6004
5 PAUSE DIN SW
P6004
3 UNLOADING END SW
1
2 FF/REW
4 FOW
6 PAUSE
10 STOP
12 PEW
14
16
3
5
7
9
11
13
15
ITC6002
50Hz OSC
30 SNS1
10 C3
18 B3
33 D2 STOP
13 CO
19 B2
21 BO
20 B1
35 D4
32 D1 REW
27 RST
34 D3 FF
11 C2
17
15 A2
14 A3
12 C1
IC6001
LOADING 25
UNLOADING 24
C10 3
C11 2
C7 6
D7 PAUSE 38
CAP STOP 23
D5 REC 36
LOADING END (H) C6 7
C9 4
31
SENSOR LAMP DO (REC PLYA) (FWD FF/REW (H)
22 CAP REV
A1 16
D6012
D6011
Q6014
+5V
LOADING DRIVE ON ON ON Q6015 Q6016 Q6018
MOTOR POWER SUPPLY Q6021 Q6022
UNLOADING DRIVE ON ON ON Q6017 Q6019 Q6020
POWER SELECT Q6023
POWER SELECT Q6045
5V POWER SUPPLY Q601
R6093 R6094
Q6035
D6020
Q6034
Q6036
Q6033 ON (H)
D6029
Q6032
D6021
Q6038
Q6039
Q6040
D6023
Q6042
Q6041
D6017
+5V
D6031
Q6024
Q6025 Q6026
Front at Q6021 DRIVE
+9V
SERVO
STOP (L) 18
SERVO
FOW (H) 9
3 STOP (L)
P6009
Q6201
11 C1
Q6209
Q6202
10 CD
PAUSE S6201
FWD S6202
REC S6203
FF S6026
REW S6204
STOP S6206
6 B2
5 B1
7 B3
8 B0
9 FWD (L)
3 REC (H)
Q6208
4 PAUSE (H)
2 DEW SENSOR
Q6203 Q6204 Q6205
D6209
12 DEW (H)
Q6207
SEARCH S6207
D6207 D6208 D6209
SEARCH (L) 1
1 GND
+5V
Q6004
P6011
DEW SENSOR 16
Q6001
Q6003
Q6005
D6003 D6005 D6006
Q6002
P6011
1 DEW SENSOR
2 CYL LOCK
SERVO
FF REW (L)
Q6007 Q6008
Q6009 Q6019
P6010
2 SUPPLY PHOTO TR
P6010
1 TAKE UP PHOTO TR
S6504
P6001
1 SAFETY TAB
+9V
P6012
1 REEL SENSOR
1
2 SUPPLY PHOTO TR
4 TAKEUP PHOTO TR
6 SAFETY TAB
10 TIMER REC
12 PROGRAM
14 REEL SENSOR
16
3
5
7
9
11
13
15
IC6003
CAMERA PAUSE
CASSETTE DOWN
LAMP OUT
1
2
4
6
10
12
14
16
3
5
7
9
11
13
15
IC6004
D6016
LAMP OPEN (H)
Q6027
+5V


Q6029
Q6044
Q6028
ON
N
ON
L
C6021
50Hz OSC
SNS1
C3
B3
D2 STOP
CO
B2
BO
B1
D4
D1 REW
RST
D3 FF
C2
A2
A3
C1
IC6001
LOADING
UNLOADING
C10
C11
C7
D7 PAUSE
CAP STOP
D5 REC
LOADING END (H) C6
C9
SENSOR LAMP DO
(REC PLYA) (FWD
FF/REW (H)
CAP REV
A1
FF/REW
FOW
PAUSE
STOP
PEW
ITC6002
D6012
D6011
Q6014
+5V
LOADING DRIVE ON ON ON Q6015 Q6016 Q6018
MOTOR POWER SUPPLY Q6021 Q6022
UNLOADING DRIVE ON ON ON Q6017 Q6019 Q6020
POWER SELECT Q6023
POWER SELECT Q6045
5V POWER SUPPLY Q6011
9V POWER REGULATOR Q6012 Q6013
D6008
+9V
R5042
9V
P6008
POWER TR (E)
POWER TR (C)
POWER TR (B)
P6007
UNREG 15V
POWER OFF (L)
P6019
LOADING MOTOR ⊖
LOADING MOTOR ⊕
LOADING MOTOR
MOTOR 15V
SERVO
MUTING (H)
Q6006
DELAYED PAUSE
P3006 (JC)
DELAYED REC 9V
R6093
R6094
Q6035
Q6037 ON (L)
Q6036
Q6034
D6020
Q6033 ON (H)
D6026
D6029
D6025
D6027
D6024
P3005 (JB)
SEARCH (L)
REC 9V
CAP STOP
P3003 (JA)
Q6032
D6021
Q6038
Q6039
Q6040
Q6043
EXCEPT REC 9V
D6023
Q6042
Q6041
EE/VV
AUDIO MUTING
D6017
REC PAUSE (H)
D6031
Q6024
Front at Q6021 DRIVE
Q6025 Q6026
SEARCH (L)
P3006
CAMERA PAUSE
D6016
SEARVO
CAP REVERSE
Q6027
LAMP OPEN (H)
P6001
CASSETTE DOWN SW
S6505
SENSOR LAMP
CAMERA PAUSE
CASSETTE DOWN
LAMP OUT
IC6004
SUPPLY PHOTO TR
TAKEUP PHOTO TR
SAFETY TAB
TIMER REC
PROGRAM
REEL SENSOR
IC6003
Q6201
Q6202
Q6209
P6009
C1
CD
B2
B1
B3
B0
FWD (L)
REC (H)
PAUSE (H)
DEW (H)
GND
FWD
REC
FF
STOP
S6202
S6203
S6026
REW
S6204
S6206
Q6208
Q6204
Q6205
D6209
SEARCH
S6207
D6207
D6208
D6209
+5V
Q6004
Q6001
Q6003
Q6005
D6003
D6005
D6006
Q6002
Q6007
Q6008
Q6009
Q6019
+9V

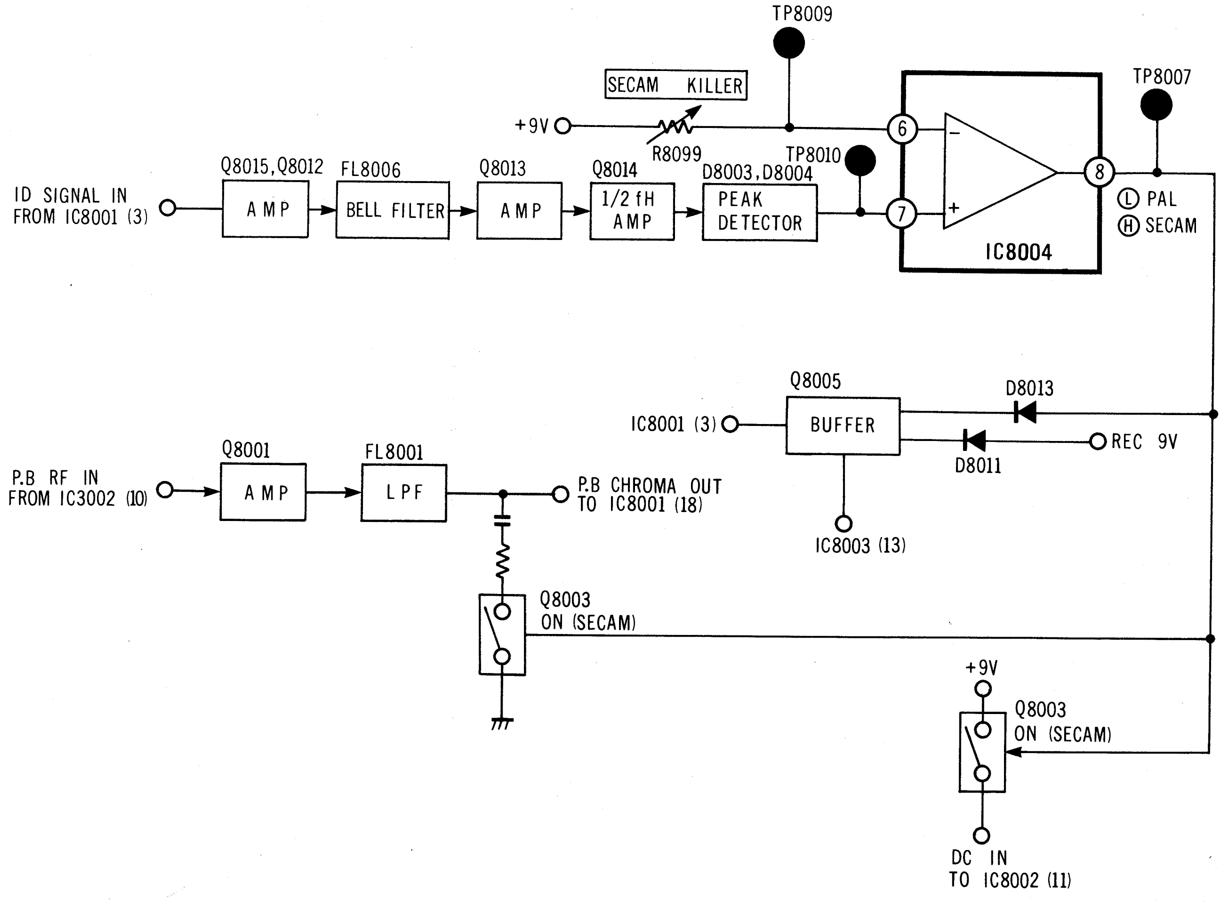
LUMINANCE PROCESS BLOCK DIAGRAM


J3002
VIDEO IN (LINE IN)
P3001
3
VIDEO IN (TUNER IN)
S3001
LINE
TUNER
TP3001
E-E LEVEL
R3008
IC3001
AGC AMP
AGC DETECTOR
SYNC SEPARATOR
B/W
COLOR
AMP
CLAMP
FM MODULATOR
EMPHASIS, CLIP
TP3002
R3009
DEVIATION
LPF FL3001
C3016
FM FREQ.
C3013, 3014, 3010, D3001, 3002
NONLINEAR EMPHASIS
Q3001
BUFFER
WHITE CLIP
R3020
REC FM LEVEL
R3022
Q3002
DARK CLIP
R3019
TP3003
TP3004
H.P.F
C3024, 3025
L3004, 3005
Q3004
MIXER
Q3003
DELAYED REC
+9 V
P3006 (S)
CHROMINANCE SIGNAL FROM PIN 7 OF K8001
Q3005, 3006
REC AMP
TP3009
Q3007
SW
ON (P.B.)
VIDEO HE
TP3006
TP3008
Q3008
SW
ON (REC)
Q3009
SW
ON (REC)
VIDEO HE
C3038
IC3002
PEAK A
AMP
AMP
HEAD SWITCHING
AMP
AMP
AMP
C3037
PEAK B
R3207
GAIN A
GAIN B
R3206
C3046
L3010
AUDIO BIAS TRAP
R3208
MIX BAL
SW PULSE IN P3005 (3)
P.B CHROMA IN TO Q8001 (B)
R3054
RF LEVEL
PHASE COMPENSATOR
Q3010, R3059, L3011, C3050
627 KHz TRAP/FREQ. COMPENSATOR
Q3011, C3052, L3013
Q3017, C3101, R3100
DE-EMPHASIS
Q3016
AMP
50 Hz INPUT FROM IC 8005 (5)
P3005
2
SEARCH L
SW
OFF (SEARCH)
P.B. LUMINANCE LEVEL
R3095
FL3002
L.P.F
P.B CHROMA INPUT FROM IC8001 (7)
IC3004
MIX
NOISE CANCELLER
H.P.F.
LIMITER
FM DEMODULATOR
EE/VV SW
AMP
DROP OUT DETECTOR
MIX
GATE
LIMITER
R3067
BAL
TP3011
DL3001
1H DELAY LINE
C3071, R3089, 3090
Q3012
AMP
L.P.F FOR FREQ. RESPONSE COMPENSATOR
Q3015
MIX AMP
Q3013
BUFFER
Q3014
HIGH PASS AMP FOR FREQ. RESPONSE COMPENSATOR
LIMITTER
IC3003
P3004
VIDEO OUT
3
OUTPUT AMP
Q3021
PHASE COMPARATOR FILTER FOR RF CONVERTER
FL3003
EMITTER FOLLOWER
Q3020
TP3013
P3002
VIDEO OUT
6
TP3014
VIDEO OUT (HSS) TO IC8002 (8)
SIGNAL PATH: RECORD MODE
SIGNAL PATH: PLAYBACK MODE
SEC
ID SIGNAL FROM IC8
P.B RF IN FROM IC30

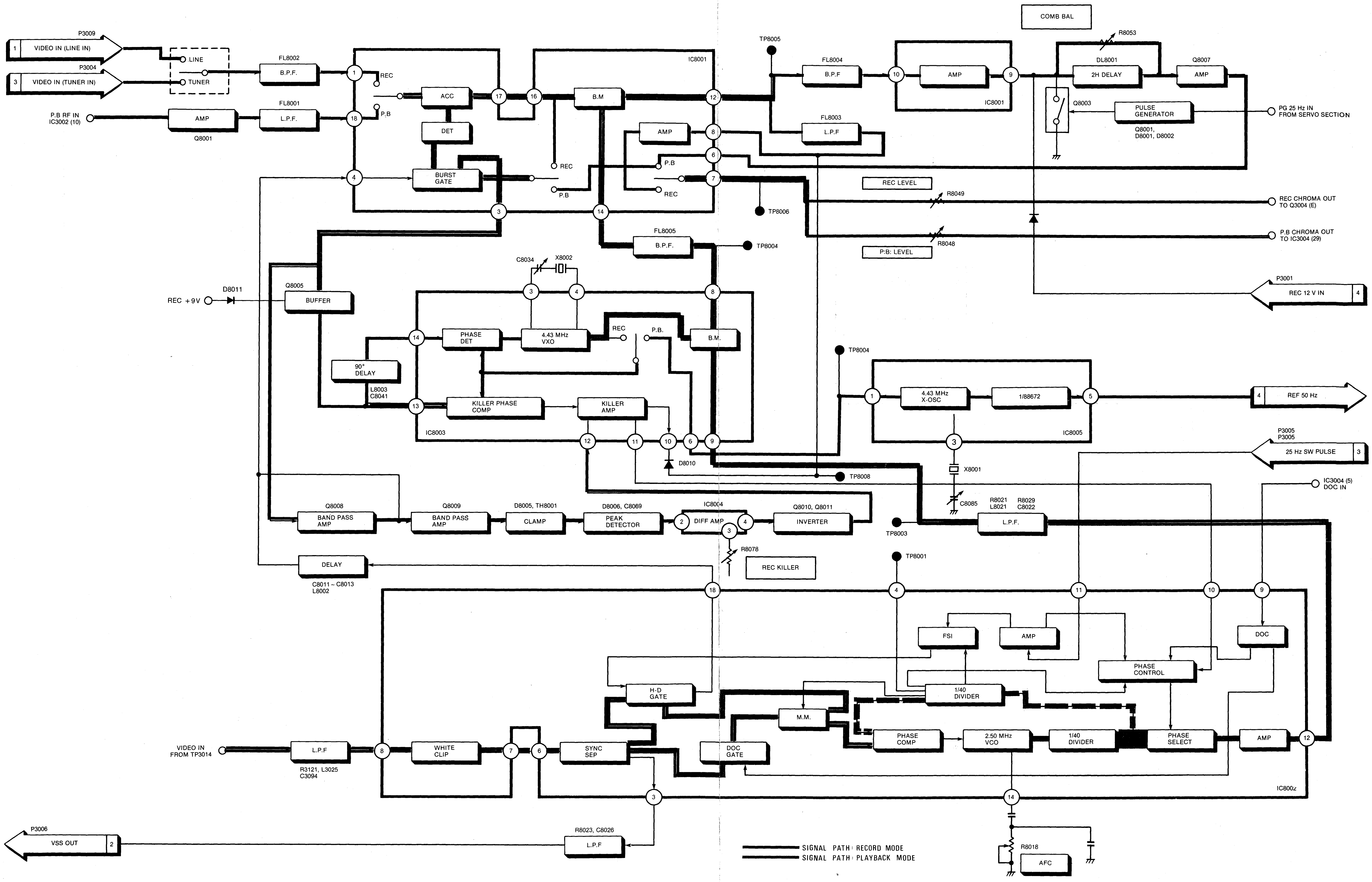
CK DIAGRAM


TP3002
REC FM LEVEL
R3022
TP3003 TP3004
H.P.F
C3024, 3025
L3004, 3005
Q3004
MIXER
Q3005, 3006
REC AMP
TP3009
VIDEO HEAD A
Q3002
DARK CLIP
WHITE CLIP
Q3003
DELAYED REC
+9 V
P3006 (S)
CHROMINANCE
SIGNAL
FROM PIN 7 OF K8001
Q3007
SW
ON (P.B.)
TP3006
TP3008
Q3008
SW
ON (REC)
Q3009
SW
ON (REC)
VIDEO HEAD B
12
LIP
DULATOR
13
C3016
REQ.
C3013, 3014, 3010, D3001, 3002
NONLINEAR EMPHASIS
Q3001
BUFFER
R3020
R3019
C3038
IC3002
3
5
AMP
AMP
HEAD
SWITCHING
AMP
AMP
AMP
C3037
PEAK A
PEAK B
R3207
GAIN A
14
13
12
11
10
9
8
GAIN B
R3206
C3046
L3010
AUDIO
BIAS TRAP
SW PULSE IN
P3005 (3)
R3208
MIX BAL
P.B CHROMA IN
TO Q8001 (B)
FL3002
L.P.F
20
18
16
LIMITER
FM
DEMODULATOR
GATE
LIMITER
10
12
13
14
PHASE
COMPENSATOR
Q3010, R3059, L3011, C3050
R3054
RF LEVEL
627 KHz TRAP/FREQ.
COMPENSATOR
Q3011, C3052, L3013
TP3011
DL3001
1H DELAY
LINE
C3071, R3089, 3090
R3067
BAL
012
AMP
L.P.F FOR
FREQ. RESPONSE
COMPENSATOR
Q3015
MIX AMP
13
BUFFER
14
LIMMTER
8
IC3003
ASS AMP FOR
ESPONSE
NSATOR
SIGNAL PATH: RECORD MODE
SIGNAL PATH: PLAYBACK MODE

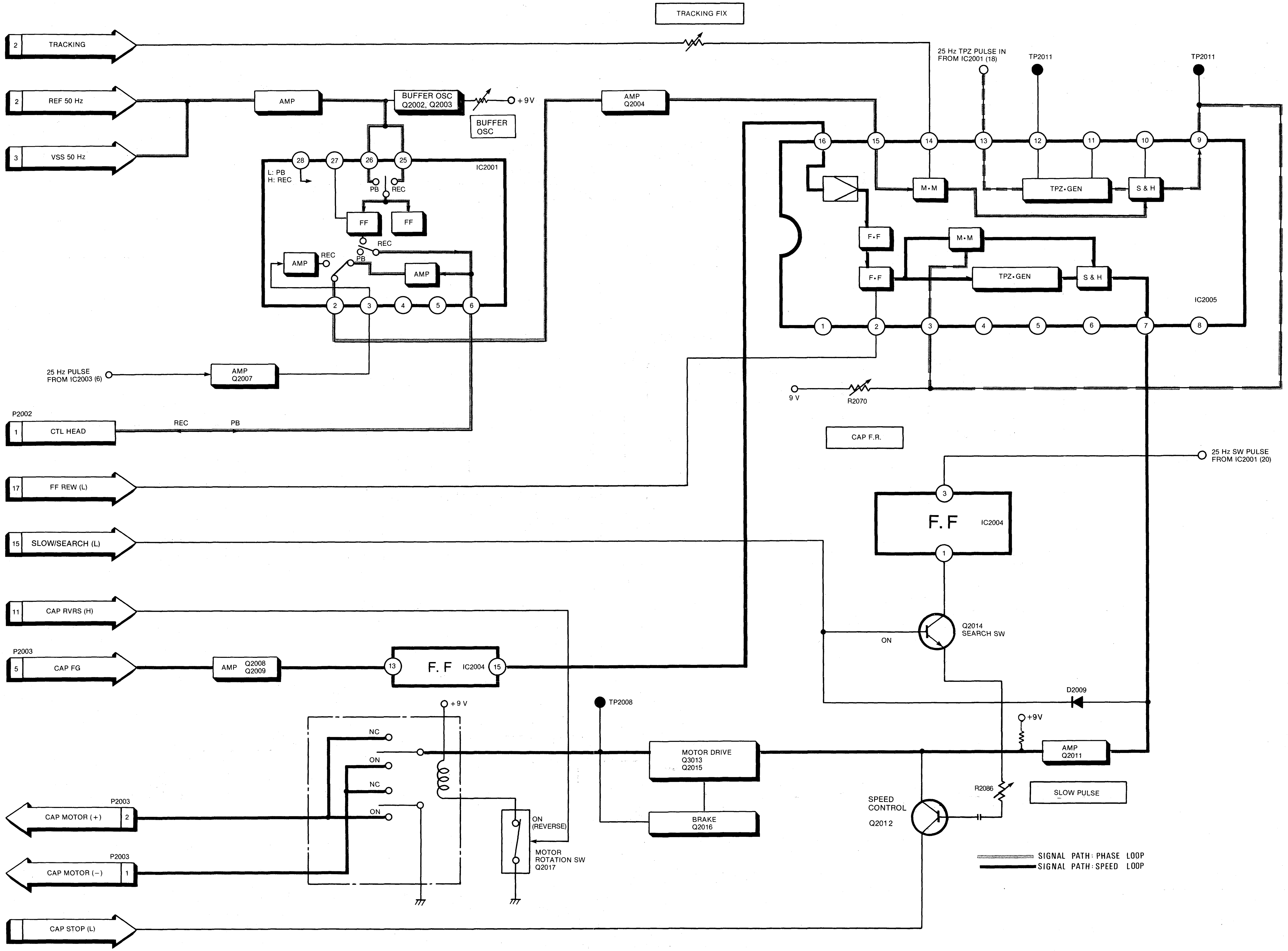
SECAM KILLER BLOCK DIAGRAM (EG/EM)


TP8009
SECAM KILLER
TP8007
+9V
R8099
TP8010
6
7
8
IC8004
Ⓛ PAL
Ⓗ SECAM
ID SIGNAL IN
FROM IC8001 (3)
Q8015, Q8012
AMP
FL8006
BELL FILTER
Q8013
AMP
Q8014
1/2 fH
AMP
D8003, D8004
PEAK
DETECTOR
Q8005
BUFFER
IC8001 (3)
D8013
D8011
REC 9V
IC8003 (13)
P.B RF IN
FROM IC3002 (10)
Q8001
AMP
FL8001
LPF
P.B CHROMA OUT
TO IC8001 (18)
Q8003
ON (SECAM)
+9V
Q8003
ON (SECAM)
DC IN
TO IC8002 (11)

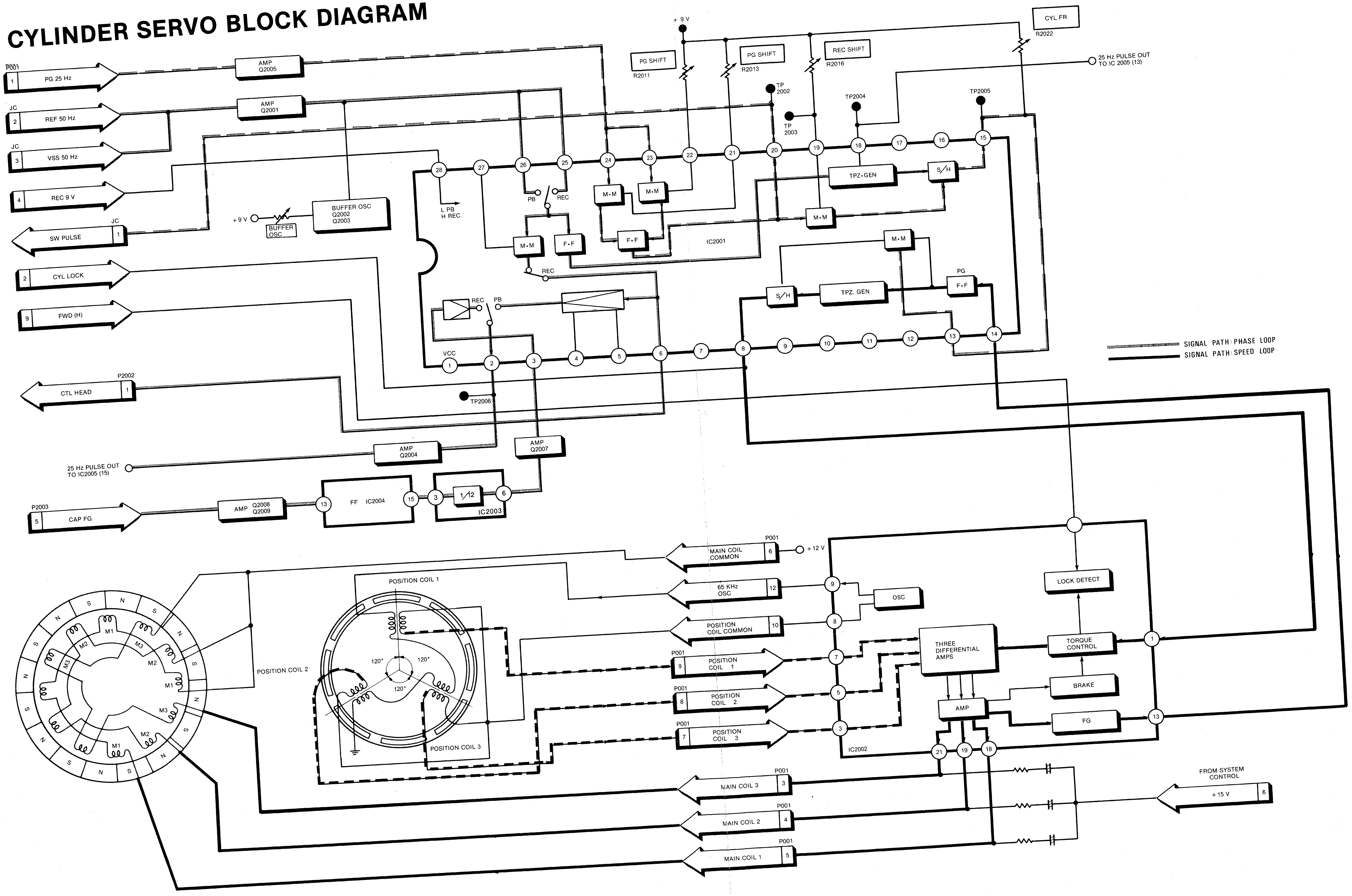
CHROMINANCE PROCESS BLOCK DIAGRAM


COMB BAL
P3009
1 VIDEO IN (LINE IN)
P3004
3 VIDEO IN (TUNER IN)
LINE
TUNER
FL8002
B.P.F.
REC
P.B
FL8001
L.P.F.
P.B RF IN
IC3002 (10)
AMP
Q8001
ACC
DET
BURST GATE
B.M
IC8001
REC
P.B
AMP
TP8005
FL8004
B.P.F
AMP
FL8003
L.P.F
R8053
DL8001
2H DELAY
Q8007
AMP
Q8003
PULSE GENERATOR
Q8001, D8001, D8002
PG 25 Hz IN FROM SERVO SECTION
REC LEVEL
R8049
REC CHROMA OUT TO Q3004 (E)
R8048
P.B CHROMA OUT TO IC3004 (29)
P:B: LEVEL
TP8006
FL8005
B.P.F.
TP8004
P3001
REC 12 V IN
4
C8034
X8002
D8011
REC +9V
Q8005
BUFFER
PHASE DET
4.43 MHz VXO
REC
P.B.
B.M.
90° DELAY
L8003
C8041
KILLER PHASE COMP
KILLER AMP
IC8003
D8010
TP8008
TP8004
4.43 MHz X-OSC
1/88672
IC8005
REF 50 Hz
X8001
C8085
P3005
25 Hz SW PULSE
IC3004 (5) DOC IN
Q8008
BAND PASS AMP
Q8009
BAND PASS AMP
D8005, TH8001
CLAMP
D8006, C8069
PEAK DETECTOR
IC8004
DIFF AMP
Q8010, Q8011
INVERTER
R8021 L8021
R8029 C8022
L.P.F.
TP8003
R8078
REC KILLER
TP8001
DELAY
C8011 ~ C8013
L8002
FSI
AMP
DOC
PHASE CONTROL
H-D GATE
1/40 DIVIDER
M.M.
VIDEO IN FROM TP3014
L.P.F
R3121, L3025
C3094
WHITE CLIP
SYNC SEP
DOC GATE
PHASE COMP
2.50 MHz VCO
1/40 DIVIDER
PHASE SELECT
AMP
IC8002
P3006
VSS OUT
2
R8023, C8026
L.P.F
R8018
AFC
SIGNAL PATH: RECORD MODE
SIGNAL PATH: PLAYBACK MODE

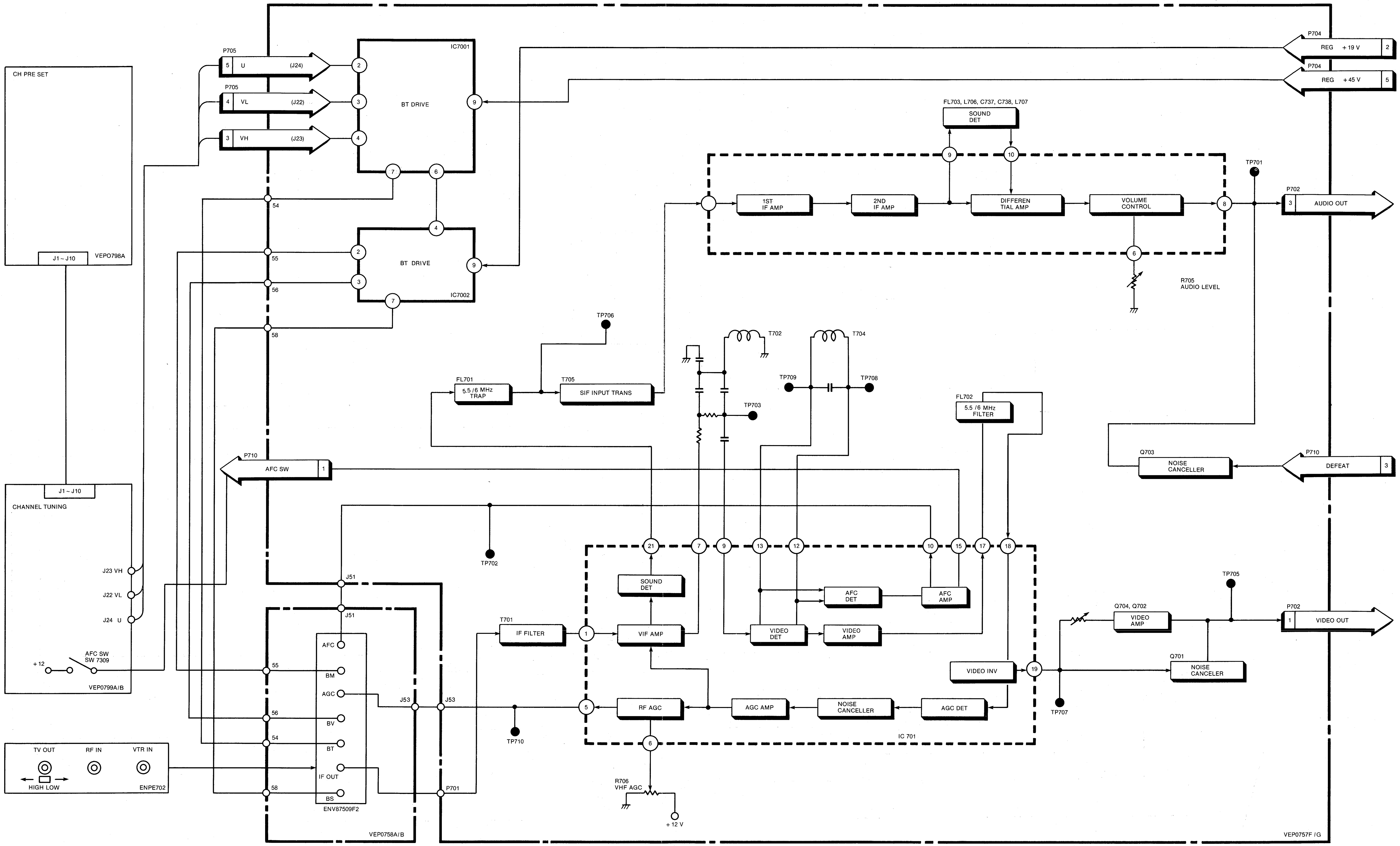
CAPSTAN SERVO BLOCK DIAGRAM


TRACKING FIX
2 TRACKING
2 REF 50 Hz
3 VSS 50 Hz
AMP
BUFFER OSC Q2002, Q2003
+9V
BUFFER OSC
AMP Q2004
25 Hz TPZ PULSE IN FROM IC2001 (18)
TP2011
TP2011
IC2001
L: PB
H: REC
28
27
26
25
PB
REC
FF
FF
REC
AMP
REC
PB
AMP
2
3
4
5
6
16
15
14
13
12
11
10
9
M•M
TPZ•GEN
S & H
F•F
M•M
F•F
TPZ•GEN
S & H
IC2005
1
2
3
4
5
6
7
8
25 Hz PULSE FROM IC2003 (6)
AMP Q2007
9 V
R2070
P2002
1 CTL HEAD
REC
PB
CAP F.R.
25 Hz SW PULSE FROM IC2001 (20)
17 FF REW (L)
3
F. F
IC2004
1
15 SLOW/SEARCH (L)
Q2014 SEARCH SW
ON
11 CAP RVRS (H)
P2003
5 CAP FG
AMP Q2008 Q2009
13
F. F
IC2004
15
D2009
TP2008
+9 V
+9V
NC
ON
NC
ON
MOTOR DRIVE Q3013 Q2015
AMP Q2011
R2086
SLOW PULSE
BRAKE Q2016
ON (REVERSE)
MOTOR ROTATION SW Q2017
SPEED CONTROL
Q2012
P2003
CAP MOTOR (+) 2
P2003
CAP MOTOR (−) 1
CAP STOP (L)
SIGNAL PATH: PHASE LOOP
SIGNAL PATH: SPEED LOOP

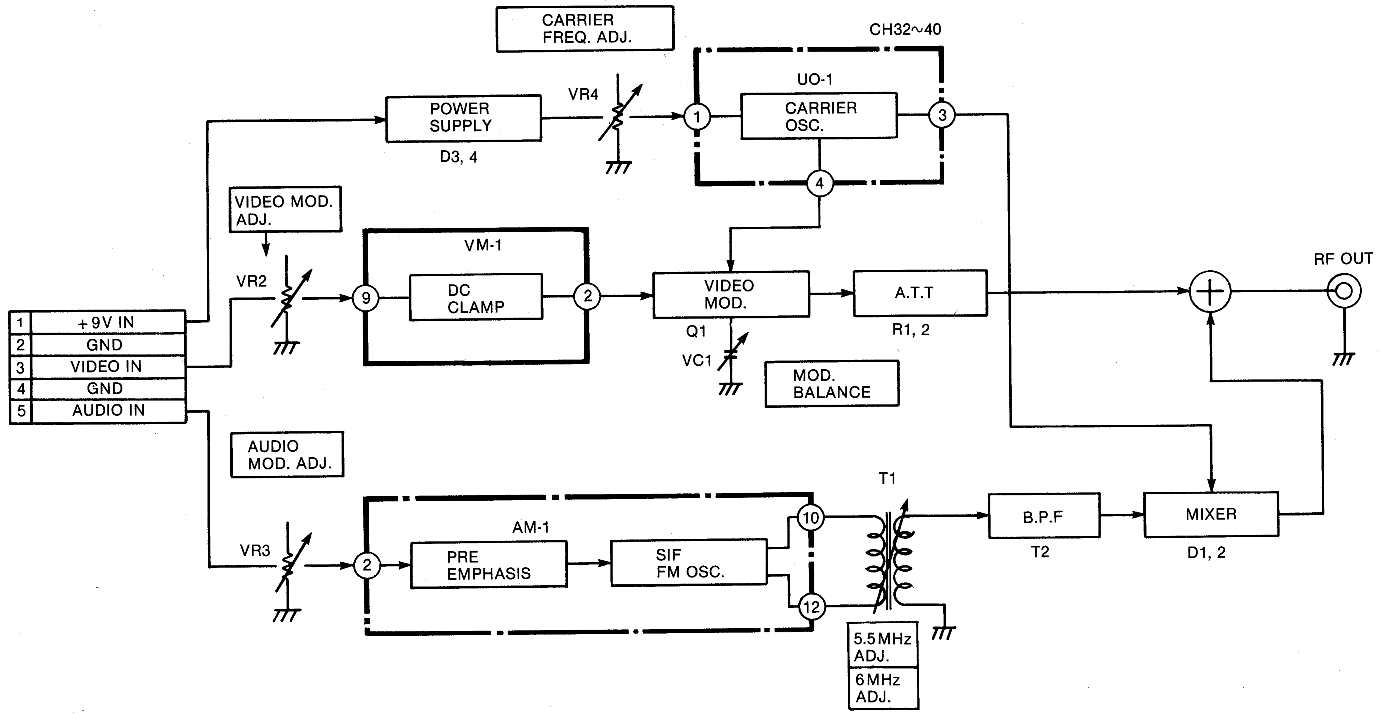
CYLINDER SERVO BLOCK DIAGRAM


P001
1 PG 25 Hz
JC
2 REF 50 Hz
JC
3 VSS 50 Hz
4 REC 9 V
JC
SW PULSE 1
2 CYL LOCK
9 FWD (H)
P2002
CTL HEAD 1
25 Hz PULSE OUT
TO IC2005 (15)
P2003
5 CAP FG
AMP Q2005
AMP Q2001
+9 V
BUFFER OSC
BUFFER OSC Q2002 Q2003
AMP Q2004
AMP Q2007
AMP Q2008 Q2009
FF IC2004
1/12
IC2003
+ 9 V
PG SHIFT
R2011
PG SHIFT
R2013
REC SHIFT
R2016
CYL FR
R2022
25 Hz PULSE OUT
TO IC 2005 (13)
TP 2002
TP 2003
TP2004
TP2005
L PB
H REC
PB
REC
M•M
F•F
IC2001
TPZ•GEN
S/H
REC
PB
TPZ. GEN
PG
VCC
TP2006
SIGNAL PATH: PHASE LOOP
SIGNAL PATH: SPEED LOOP
P001
MAIN COIL COMMON 6
+12 V
65 KHz OSC 12
POSITION COIL COMMON 10
P001
9 POSITION COIL 1
P001
8 POSITION COIL 2
P001
7 POSITION COIL 3
OSC
THREE DIFFERENTIAL AMPS
AMP
LOCK DETECT
TORQUE CONTROL
BRAKE
FG
IC2002
P001
MAIN COIL 3 3
P001
MAIN COIL 2 4
P001
MAIN COIL 1 5
FROM SYSTEM CONTROL
+15 V 6
POSITION COIL 1
POSITION COIL 2
POSITION COIL 3
120°
120°
120°
M1
M2
M3
S
N

TV DEMODULATOR BLOCK DIAGRAM


CH PRE SET
J1 ~ J10
VEPO798A
P705
5 U (J24)
4 VL (J22)
3 VH (J23)
IC7001
BT DRIVE
2
3
4
9
7
6
54
55
56
58
IC7002
P704
REG +19 V 2
REG +45 V 5
FL703, L706, C737, C738, L707
SOUND DET
1ST IF AMP
2ND IF AMP
DIFFEREN TIAL AMP
VOLUME CONTROL
TP701
P702
3 AUDIO OUT
R705 AUDIO LEVEL
TP706
T702
T704
TP709
TP708
TP703
FL701
5.5 /6 MHz TRAP
T705
SIF INPUT TRANS
FL702
5.5 /6 MHz FILTER
P710
AFC SW 1
Q703
NOISE CANCELLER
DEFEAT 3
J1 ~ J10
CHANNEL TUNING
J23 VH
J22 VL
J24 U
AFC SW
SW 7309
+12
VEP0799A/B
TP702
21
7
9
13
12
10
15
17
18
J51
AFC
BM
AGC
BV
BT
IF OUT
BS
ENV87509F2
J53
P701
VEP0758A/B
T701
IF FILTER
SOUND DET
VIF AMP
AFC DET
AFC AMP
VIDEO DET
VIDEO AMP
VIDEO INV
RF AGC
AGC AMP
NOISE CANCELLER
AGC DET
IC 701
TP710
R706
VHF AGC
+12 V
TP705
Q704, Q702
VIDEO AMP
1 VIDEO OUT
Q701
NOISE CANCELER
TP707
19
TV OUT
RF IN
VTR IN
HIGH LOW
ENPE702
VEP0757F /G

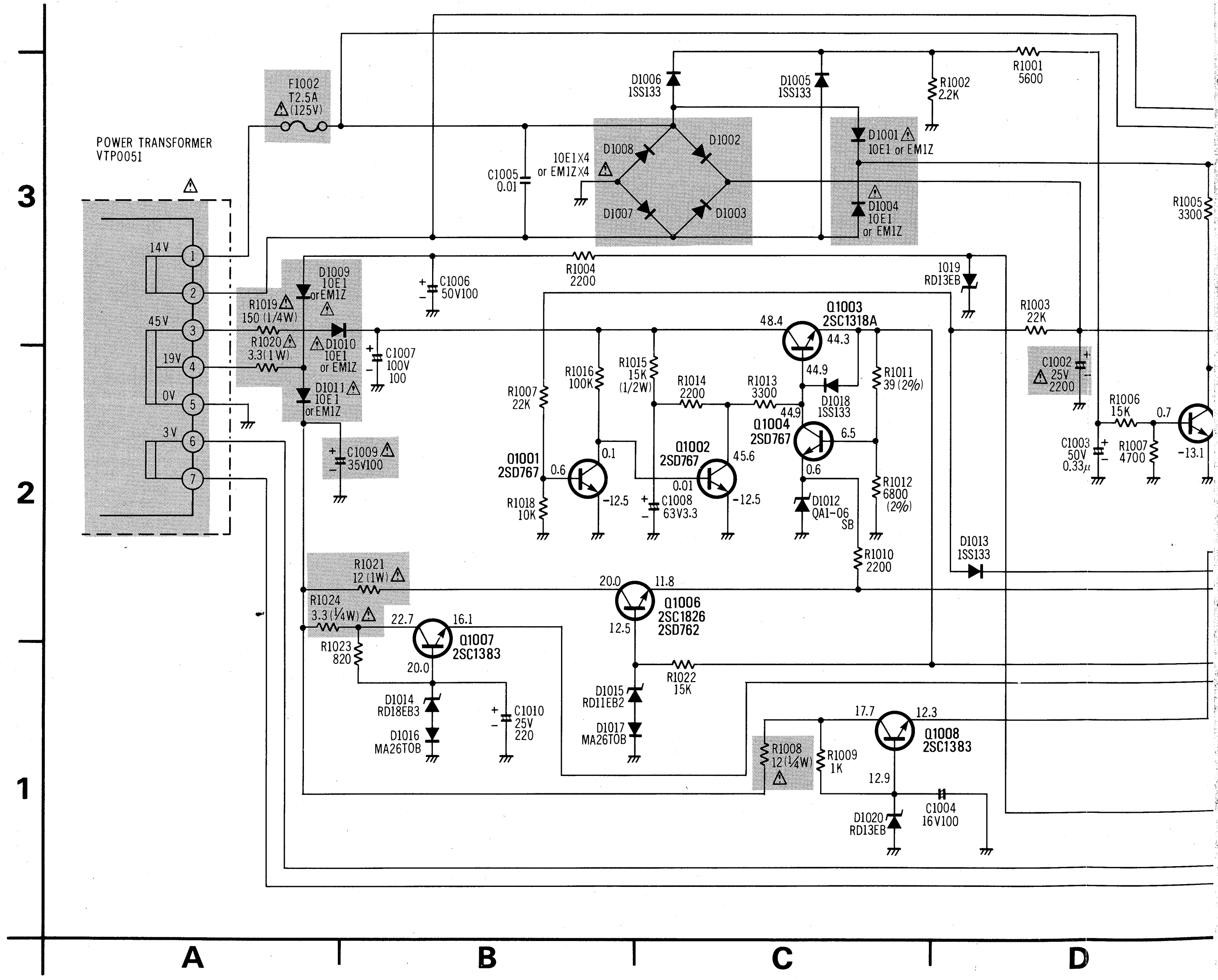
RF CONVERTER BLOCK DIAGRAM
(ENC17351/ENC17352/ENC17353)


CARRIER FREQ. ADJ.
CH32~40
UO-1
POWER SUPPLY
D3, 4
VR4
CARRIER OSC.
VIDEO MOD. ADJ.
VM-1
VR2
DC CLAMP
VIDEO MOD.
Q1
VC1
A.T.T
R1, 2
MOD. BALANCE
RF OUT
1 +9V IN
2 GND
3 VIDEO IN
4 GND
5 AUDIO IN
AUDIO MOD. ADJ.
T1
AM-1
VR3
PRE EMPHASIS
SIF FM OSC.
B.P.F
T2
MIXER
D1, 2
5.5MHz ADJ.
6MHz ADJ.

P1002 (Power Supply C.B.A)		
PIN NO.	SIGNAL NAME	DESTINATION
1	GND (Servo)	P6007-1 System Control & Servo Section
2	Cap Motor 18V	P6007-2 System Control & Servo Section
3	Power On-Off	P6007-3 System Control & Servo Section
4	Power Off (L)	P6007-4 System Control & Servo Section
5	Motor 15V	P6007-5 System Control & Servo Section
6	Unreg 15V	P6007-6 System Control & Servo Section

P1003 (P	
PIN NO.	SIGNAL NAME
1	−13V
2	+18V
3	GND
4	AC 3V
5	AC 3V

POWER SUPPLY SCHEMATIC DIAGRAM

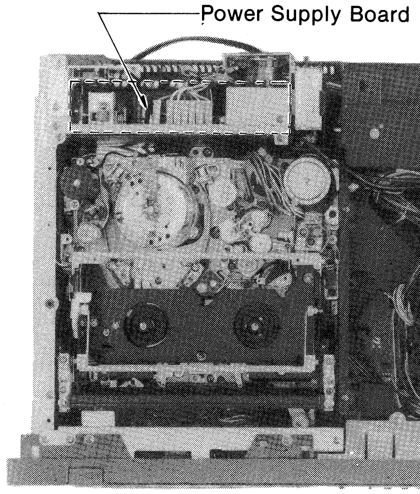

3
2
1
A
B
C
D
POWER TRANSFORMER VTP0051
14V
45V
19V
0V
3V
F1002 T2.5A (125V)
C1005 0.01
10E1X4 or EM1ZX4
D1008
D1002
D1007
D1003
D1006 1SS133
D1005 1SS133
D1001 10E1 or EM1Z
D1004 10E1 or EM1Z
R1002 2.2K
R1001 5600
R1005 3300
D1009 10E1 or EM1Z
R1019 150 (1/4W)
R1020 3.3 (1W)
D1010 10E1 or EM1Z
D1011 10E1 or EM1Z
C1006 50V100
C1007 100V 100
C1009 35V100
R1004 2200
1019 RD13EB
R1003 22K
C1002 25V 2200
R1006 15K
0.7
C1003 50V 0.33μ
R1007 4700
-13.1
Q1003 2SC1318A
48.4
44.3
44.9
R1011 39 (2%)
D1018 1SS133
Q1004 2SD767
6.5
0.6
R1012 6800 (2%)
D1012 QA1-06 SB
R1010 2200
R1016 100K
R1015 15K (1/2W)
R1014 2200
R1013 3300
R1007 22K
Q1001 2SD767
0.1
R1018 10K
-12.5
Q1002 2SD767
45.6
0.01
C1008 63V3.3
D1013 1SS133
R1021 12 (1W)
R1024 3.3 (1/4W)
22.7
16.1
Q1007 2SC1383
R1023 820
20.0
D1014 RD18EB3
D1016 MA26T0B
C1010 25V 220
20.0
11.8
Q1006 2SC1826 2SD762
12.5
R1022 15K
D1015 RD11EB2
D1017 MA26T0B
17.7
12.3
Q1008 2SC1383
R1008 12 (1/4W)
R1009 1K
12.9
C1004 16V100
D1020 RD13EB

ervo Section
ervo Section
ervo Section
ervo Section
ervo Section
ervo Section

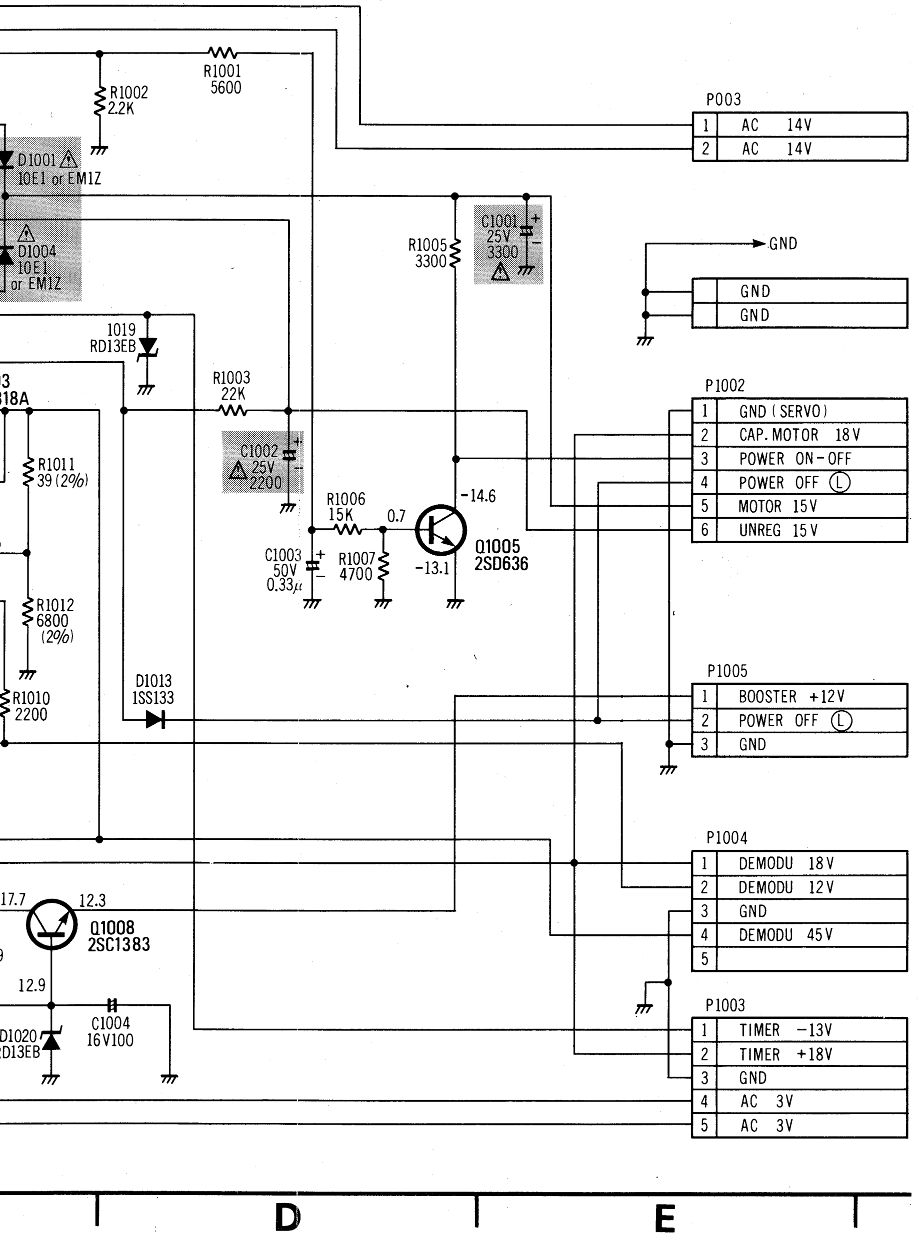
P1003 (Power Supply C.B.A)		
PIN NO.	SIGNAL NAME	DESTINATION
1	−13V	P7501-1 Timer Section
2	+18V	P7501-2 Timer Section
3	GND	P7501-3 Timer Section
4	AC 3V	— —
5	AC 3V	— —

P1004 (Power Supply C.B.A)		
PIN NO.	SIGNAL NAME	DESTINATION
1	18V	P704-1 TV Demodulator Section
2	Demod 12V	P704-2 TV Demodulator Section
3	GND	P704-3 TV Demodulator Section
4	45V	P704-4 TV Demodulator Section

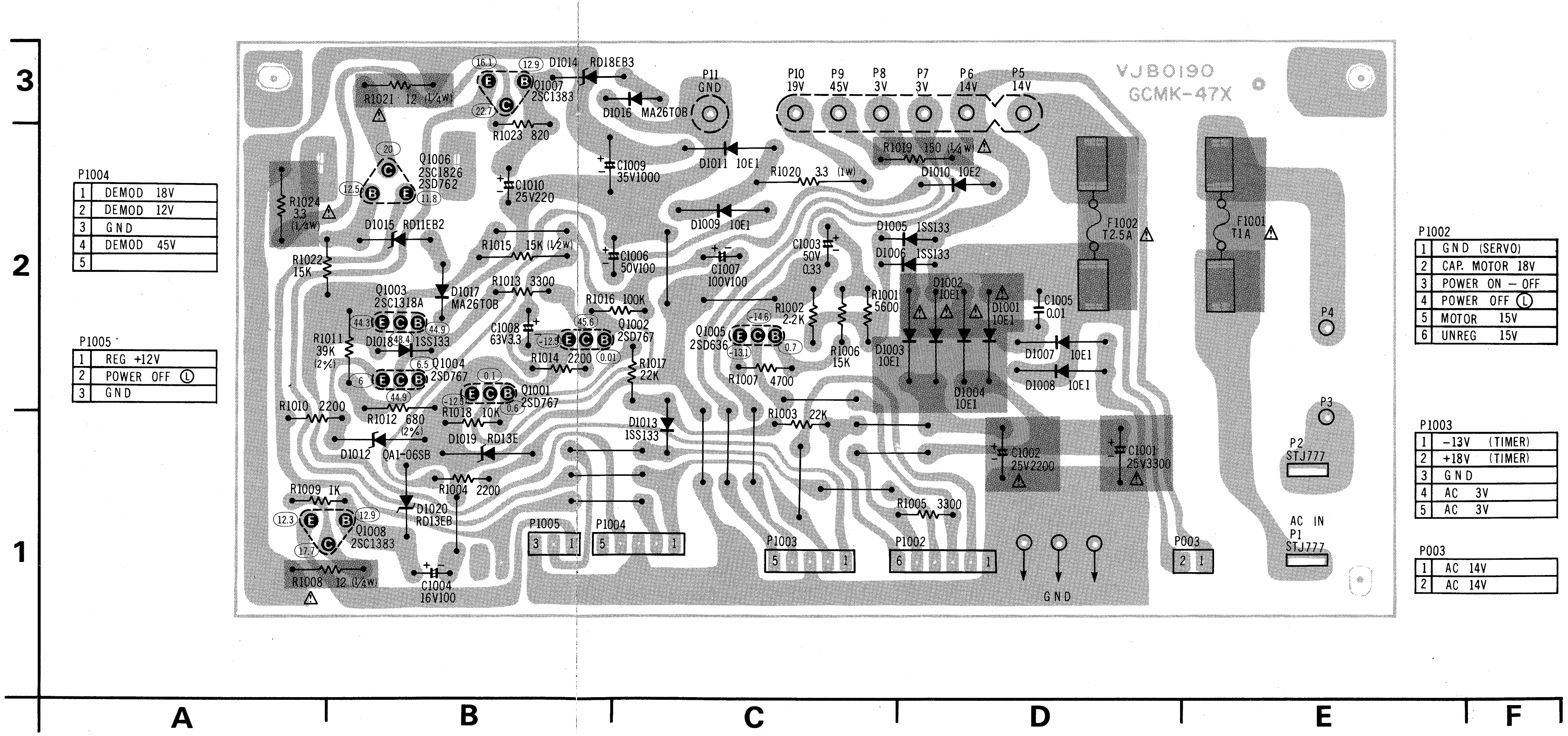
P1005 (Power Supply C.B.A)		
PIN NO.	SIGNAL NAME	DESTINATION
1	Reg +12V	P6501-1 Front SW
2	Power Off (L)	P6501-2 Front SW
3	GND	P6501-3 Front SW


Power Supply Board

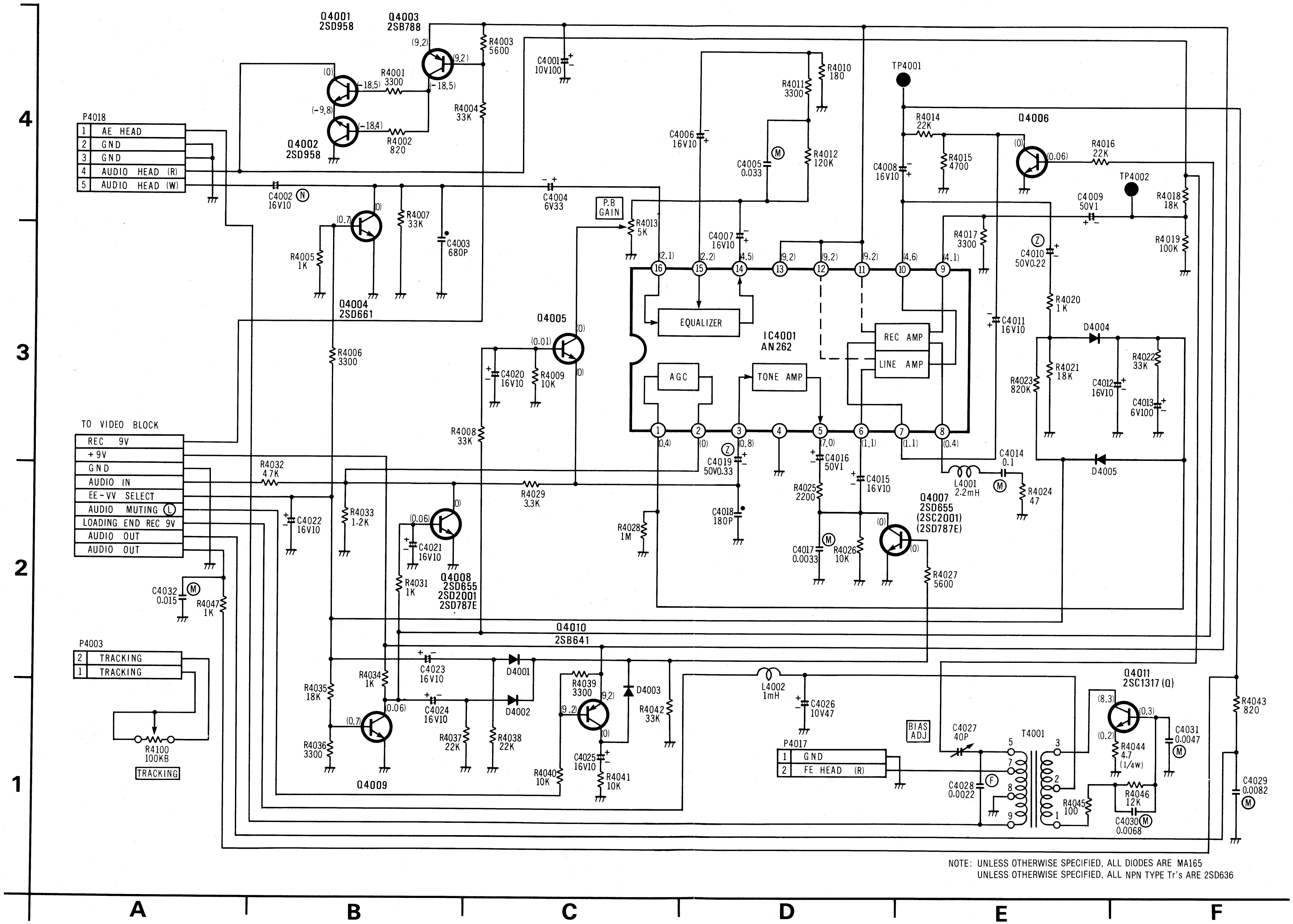
Power Supply C.B.A.	
Q1001	B-2
Q1002	B-2
Q1003	B-2
Q1004	B-2
Q1005	C-2
Q1006	B-2
Q1007	B-3
Q1008	B-1


R1001
5600
R1002
2.2K
P003
1 AC 14V
2 AC 14V
D1001
10E1 or EM1Z
D1004
10E1
or EM1Z
R1005
3300
C1001
25V
3300
GND
GND
GND
1019
RD13EB
R1003
22K
P1002
1 GND (SERVO)
2 CAP. MOTOR 18V
3 POWER ON−OFF
4 POWER OFF Ⓛ
5 MOTOR 15V
6 UNREG 15V
C1002
25V
2200
R1011
39 (2%)
R1006
15K
0.7
−14.6
Q1005
2SD636
−13.1
C1003
50V
0.33μ
R1007
4700
R1012
6800
(2%)
R1010
2200
D1013
1SS133
P1005
1 BOOSTER +12V
2 POWER OFF Ⓛ
3 GND
P1004
1 DEMODU 18V
2 DEMODU 12V
3 GND
4 DEMODU 45V
5
17.7
12.3
Q1008
2SC1383
12.9
D1020
RD13EB
C1004
16V100
P1003
1 TIMER −13V
2 TIMER +18V
3 GND
4 AC 3V
5 AC 3V
D
E

POWER SUPPLY BOARD (VEP0190A)

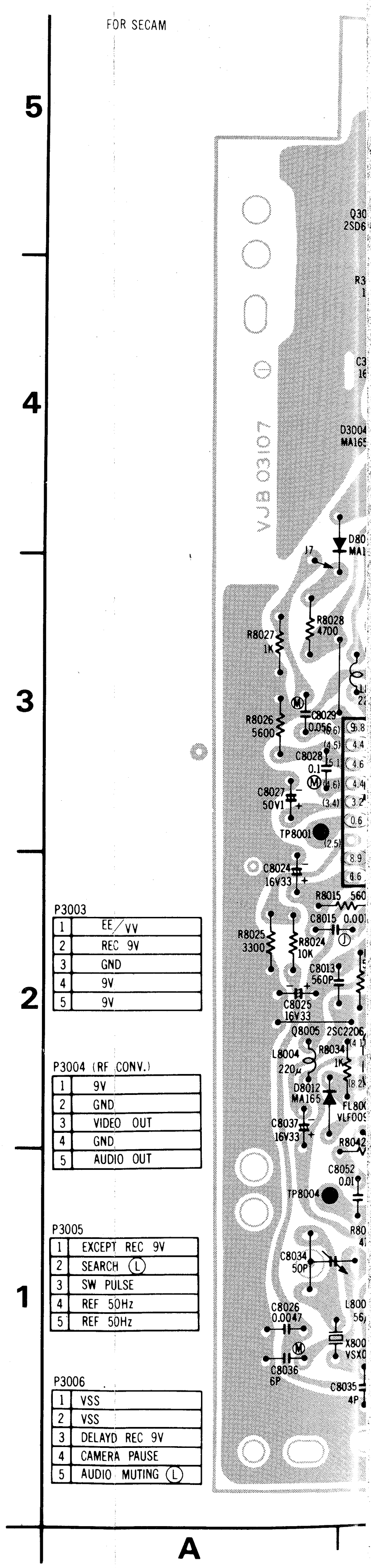

3
2
1
A
B
C
D
E
F
VJB0190
GCMK-47X
P1004
1 DEMOD 18V
2 DEMOD 12V
3 GND
4 DEMOD 45V
5
P1005
1 REG +12V
2 POWER OFF Ⓛ
3 GND
R1021 12 (1/4W)
Q1007
2SC1383
D1014 RD18EB3
D1016 MA26T0B
R1023 820
P11 GND
P10 19V
P9 45V
P8 3V
P7 3V
P6 14V
P5 14V
R1019 150 (1/4W)
D1011 10E1
R1020 3.3 (1W)
D1010 10E2
Q1006
2SC1826
2SD762
C1010
25V220
C1009
35V1000
R1024
3.3
(1/4W)
D1015 RD11EB2
D1009 10E1
D1005 1SS133
D1006 1SS133
F1002
T2.5A
F1001
T1A
R1022
15K
R1015 15K (1/4W)
C1006
50V100
C1003
50V
0.33
C1007
100V100
Q1003
2SC1318A
D1017
MA26T0B
R1013 3300
R1016 100K
R1001
5600
D1002
10E1
D1001
10E1
C1005
0.01
R1011
39K
(2%)
D1018 1SS133
C1008
63V3.3
Q1002
2SD767
Q1005
2SD636
R1002
2.2K
D1003
10E1
D1007 10E1
D1008 10E1
R1014 2200
R1006
15K
R1017
22K
Q1004
2SD767
R1007 4700
D1004
10E1
P4
R1010 2200
R1018 10K
Q1001
2SD767
D1013
1SS133
R1003 22K
P3
R1012 680
(2%)
D1019 RD13E
D1012 QA1-06SB
C1002
25V2200
C1001
25V3300
P2
STJ777
R1009 1K
R1004 2200
R1005 3300
Q1008
2SC1383
D1020
RD13EB
P1005
P1004
P1003
P1002
P003
AC IN
P1
STJ777
R1008 12 (1/4W)
C1004
16V100
GND
P1002
1 GND (SERVO)
2 CAP. MOTOR 18V
3 POWER ON − OFF
4 POWER OFF Ⓛ
5 MOTOR 15V
6 UNREG 15V
P1003
1 −13V (TIMER)
2 +18V (TIMER)
3 GND
4 AC 3V
5 AC 3V
P003
1 AC 14V
2 AC 14V

AUDIO SCHEMATIC DIAGRAM

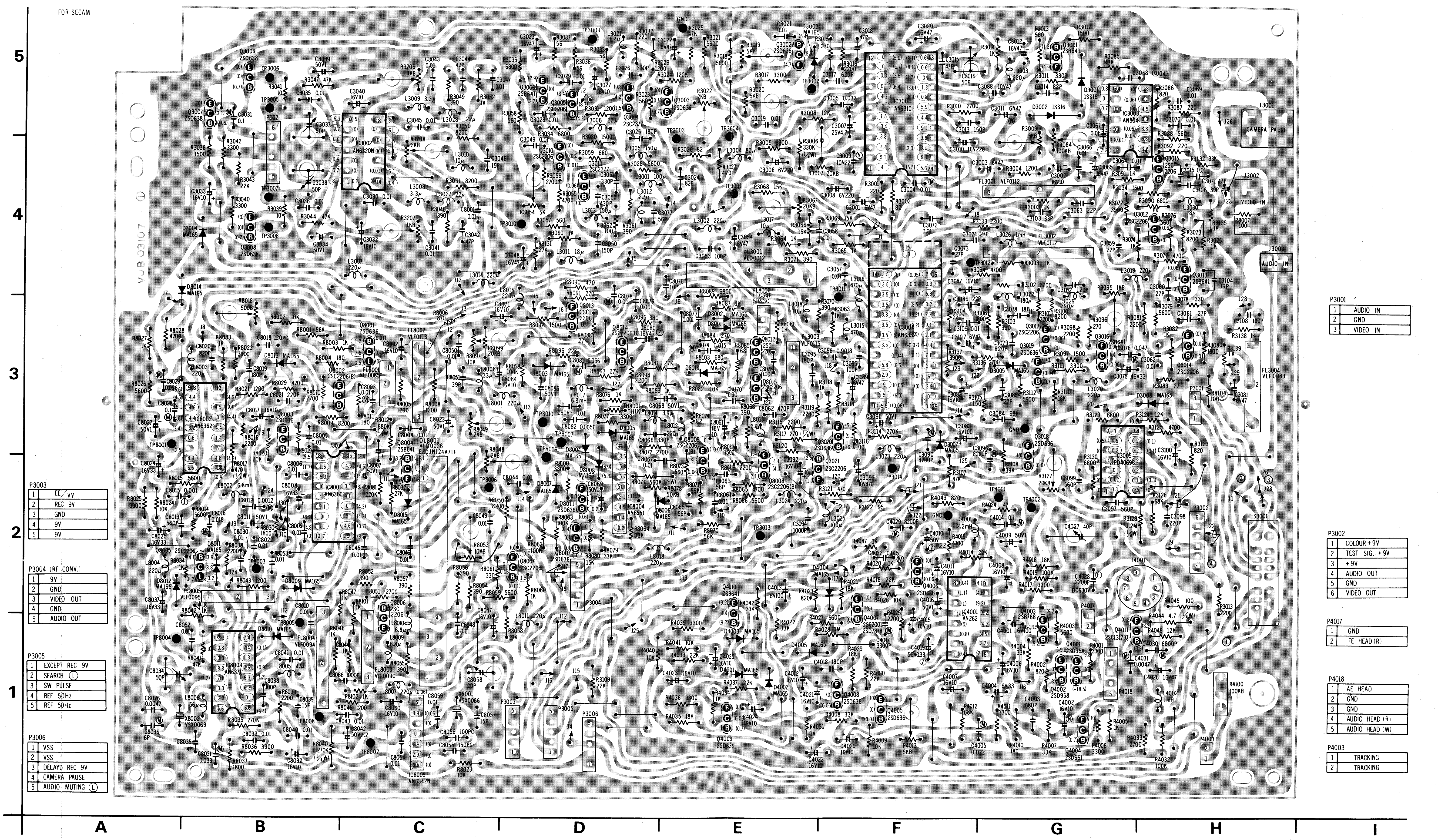

P4018
1 AE HEAD
2 GND
3 GND
4 AUDIO HEAD (R)
5 AUDIO HEAD (W)
Q4001 2SD958
Q4003 2SB788
Q4002 2SD958
R4001 3300
R4002 820
R4003 5600
R4004 33K
C4001 10V100
C4002 16V10
C4003 680P
C4004 6V33
Q4004 2SD661
R4005 1K
R4007 33K
R4006 3300
P.B GAIN
R4013 5K
Q4005
C4020 16V10
R4009 10K
R4008 33K
C4006 16V10
C4005 0.033
C4007 16V10
R4010 180
R4011 3300
R4012 120K
TP4001
R4014 22K
R4015 4700
C4008 16V10
Q4006
R4016 22K
TP4002
C4009 50V1
R4018 18K
R4019 100K
R4017 3300
C4010 50V0.22
R4020 1K
C4011 16V10
D4004
R4021 18K
R4022 33K
R4023 820K
C4012 16V10
C4013 6V100
D4005
IC4001 AN262
EQUALIZER
AGC
TONE AMP
REC AMP
LINE AMP
C4019 50V0.33
C4018 180P
R4028 1M
C4016 50V1
C4015 16V10
R4025 2200
C4017 0.0033
R4026 10K
Q4007 2SD655 (2SC2001) (2SD787E)
R4027 5600
L4001 2.2mH
C4014 0.1
R4024 47
TO VIDEO BLOCK
REC 9V
+9V
GND
AUDIO IN
EE-VV SELECT
AUDIO MUTING Ⓛ
LOADING END REC 9V
AUDIO OUT
AUDIO OUT
R4032 47K
C4022 16V10
R4033 1.2K
R4029 3.3K
C4021 16V10
Q4008 2SD655 2SD2001 2SD787E
R4031 1K
C4032 0.015
R4047 1K
Q4010 2SB641
P4003
2 TRACKING
1 TRACKING
R4100 100KB
TRACKING
R4034 1K
R4035 18K
R4036 3300
Q4009
C4023 16V10
C4024 16V10
D4001
D4002
R4037 22K
R4038 22K
R4039 3300
D4003
R4042 33K
R4040 10K
C4025 16V10
R4041 10K
L4002 1mH
C4026 10V47
P4017
1 GND
2 FE HEAD (R)
BIAS ADJ
C4027 40P
T4001
C4028 0.0022
Q4011 2SC1317 (Q)
R4044 4.7 (1/4W)
C4031 0.0047
R4045 100
R4046 12K
C4030 0.0068
R4043 820
C4029 0.0082
A B C D E F
1 2 3 4

NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES ARE MA165
UNLESS OTHERWISE SPECIFIED, ALL NPN TYPE Tr's ARE 2SD636

LUMINANCE/C


FOR SECAM
VJB 03107
P3003
1 EE/VV
2 REC 9V
3 GND
4 9V
5 9V
P3004 (RF CONV.)
1 9V
2 GND
3 VIDEO OUT
4 GND
5 AUDIO OUT
P3005
1 EXCEPT REC 9V
2 SEARCH Ⓛ
3 SW PULSE
4 REF 50Hz
5 REF 50Hz
P3006
1 VSS
2 VSS
3 DELAYD REC 9V
4 CAMERA PAUSE
5 AUDIO MUTING Ⓛ
TP8001
TP8004
A
1 2 3 4 5

LUMINANCE/CHROMINANCE & AUDIO BOARD (VEP03107A) <NV-2000-E/B/EV> (VEP03107B) <NV-2000-EG>


FOR SECAM
5
4
3
2
1
A
B
C
D
E
F
G
H
I
VJB 03107
J3001 CAMERA PAUSE
J3002 VIDEO IN
J3003 AUDIO IN
IC3001 AN6310
IC3002 AN6320N
IC3003 AN304
IC3005 AN6362
IC4001 AN262
IC8001 AN6360
IC8002 AN6362
IC8003 AN6371
IC8004 AN6551
IC8005 AN6342N
S3001
T4001
GND
TP3001
TP3002
TP3003
TP3004
TP3005
TP3006
TP3007
TP3008
TP3009
TP3010
TP3011
TP3012
TP3013
TP3014
TP4001
TP4002
TP8001
TP8002
TP8003
TP8004
TP8005
TP8006
TP8007
TP8008
TP8009
TP8010
FL3001 VLF0112
FL3002 VLF0112
FL3003 VLF0115
FL3004 VLF0083
DL3001 VLD0012
DL8001 VLD0026
X8001 VSX0066
X8002 VSX0069
P3001
P3002
P3003
P3004
P3005
P3006
P4003
P4017
P4018

P3003

1	EE/VV
2	REC 9V
3	GND
4	9V
5	9V

P3004 (RF CONV.)

1	9V
2	GND
3	VIDEO OUT
4	GND
5	AUDIO OUT

P3005

1	EXCEPT REC 9V
2	SEARCH Ⓛ
3	SW PULSE
4	REF 50Hz
5	REF 50Hz

P3006

1	VSS
2	VSS
3	DELAYD REC 9V
4	CAMERA PAUSE
5	AUDIO MUTING Ⓛ

P3001

1	AUDIO IN
2	GND
3	VIDEO IN

P3002

1	COLOUR +9V
2	TEST SIG. +9V
3	+9V
4	AUDIO OUT
5	GND
6	VIDEO OUT

P4017

1	GND
2	FE HEAD (R)

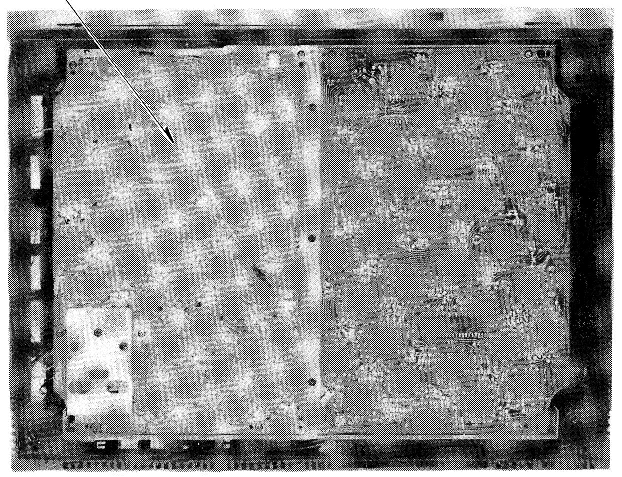
P4018

1	AE HEAD
2	GND
3	GND
4	AUDIO HEAD (R)
5	AUDIO HEAD (W)

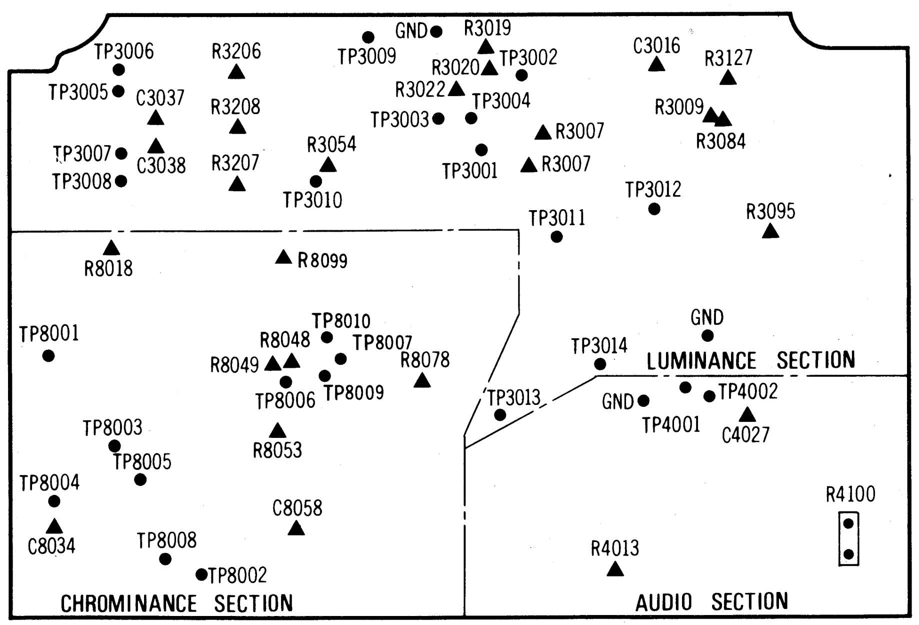
P4003

1	TRACKING
2	TRACKING

Luminance/Chrominance & Audio Board



Audio, Luminance & Chrominance C.B.A.			
Q3001	G-5	Q4003	G-2
Q3002	E-5	Q4004	G-1
Q3003	E-5	Q4005	F-1
Q3004	D-5	Q4006	F-2
Q3005	E-5	Q4007	F-2
Q3006	D-5	Q4008	F-1
Q3007	B-5	Q4009	E-1
Q3008	B-4	Q4010	E-1
Q3009	C-3	Q4011	G-2
Q3010	D-4	Q8001	C-2
Q3011	D-4	Q8002	C-3
Q3012	H-4	Q8003	B-3
Q3013	H-4	Q8005	B-2
Q3014	H-3	Q8006	C-1
Q3015	H-4	Q8007	D-2
Q3016	G-3	Q8008	E-2
Q3017	G-3	Q8009	E-2
Q3018	G-3	Q8010	D-2
Q3019	G-3	Q8011	D-2
Q3020	F-3	Q8012	E-3
Q3021	E-2	Q8013	D-3
Q4001	G-1	Q8014	D-3
Q4002	G-1	Q8015	E-3


TP3006
R3206
TP3009
GND
R3019
R3020
TP3002
C3016
R3127
TP3005
C3037
R3208
R3022
TP3004
TP3003
R3007
R3009
R3084
TP3007
C3038
R3207
R3054
TP3001
R3007
TP3008
TP3010
TP3012
TP3011
R3095
R8018
R8099
TP8001
TP8010
R8048
TP8007
R8049
R8078
TP8006
TP8009
TP3014
GND
LUMINANCE SECTION
TP3013
GND
TP4002
TP4001
C4027
TP8003
TP8005
R8053
TP8004
C8058
R4100
C8034
TP8008
TP8002
R4013
CHROMINANCE SECTION
AUDIO SECTION

P3001 (Audio, Lumminance & Chrominance C.B.A)			
PIN NO.	SIGNAL NAME	DESTINATION	
1	Audio In	P702-3	TV Demodulator Section
2	GND	P702-2	TV Demodulator Section
3	Video In	P702-1	TV Demodulator Section

P3003 (Audio, Lumminance & Chrominance C.B.A)			
PIN NO.	SIGNAL NAME	DESTINATION	
1	Color	P6601-1	Output
2	Test Sig	P6601-2	Output
3	+9V	P6601-3	Output
4	Audio	P6601-4	Output
5	GND	P6601-5	Output
6	Video	P6601-6	Output

P3004 (Audio, Lumminance & Chrominance C.B.A)			
PIN NO.	SIGNAL NAME	DESTINATION	
1	+9V	P20-1	Converter Section
2	GND	P20-2	Converter Section
3	Video	P20-3	Converter Section
4	GND	P20-4	Converter Section
5	Audio	P20-5	Converter Section

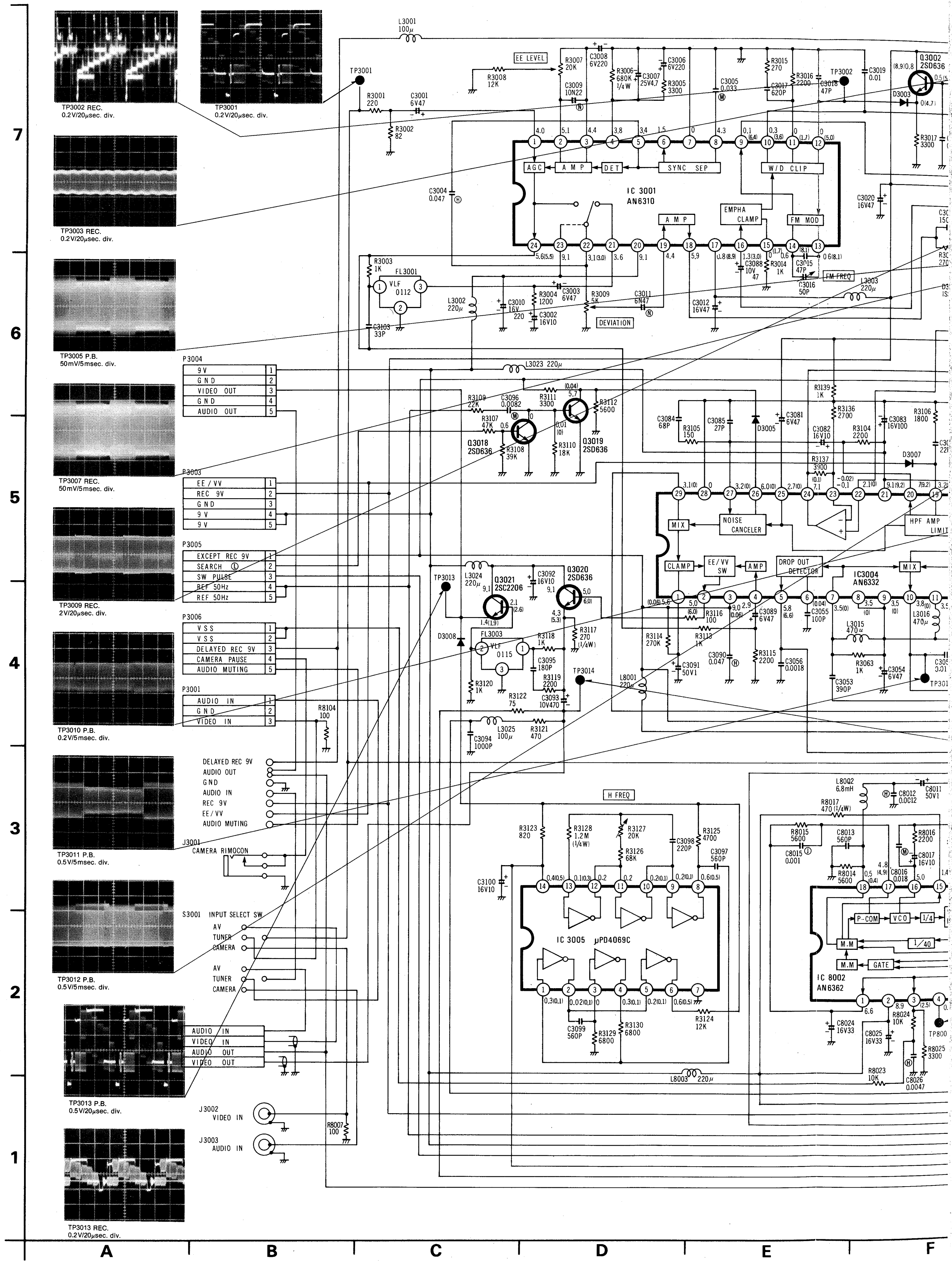
JA (Audio, Lumminance & Chrominance C.B.A)			
PIN NO.	SIGNAL NAME	DESTINATION	
1	GND	JA-1	System Control & Servo Section
2	9V	JA-2	System Control & Servo Section
3	EE/VV	JA-3	System Control & Servo Section
4	Rec 9V	JA-4	System Control & Servo Section

P3005 (Audio, Lumminance & Chrominance C.B.A)			
PIN NO.	SIGNAL NAME	DESTINATION	
1	Except Rec 9V	JB-1	System Control & Servo Section
2	Search (L)	JB-2	System Control & Servo Section
3	SW Pulse	JB-3	System Control & Servo Section
4	Ref 50Hz	JB-4	System Control & Servo Section

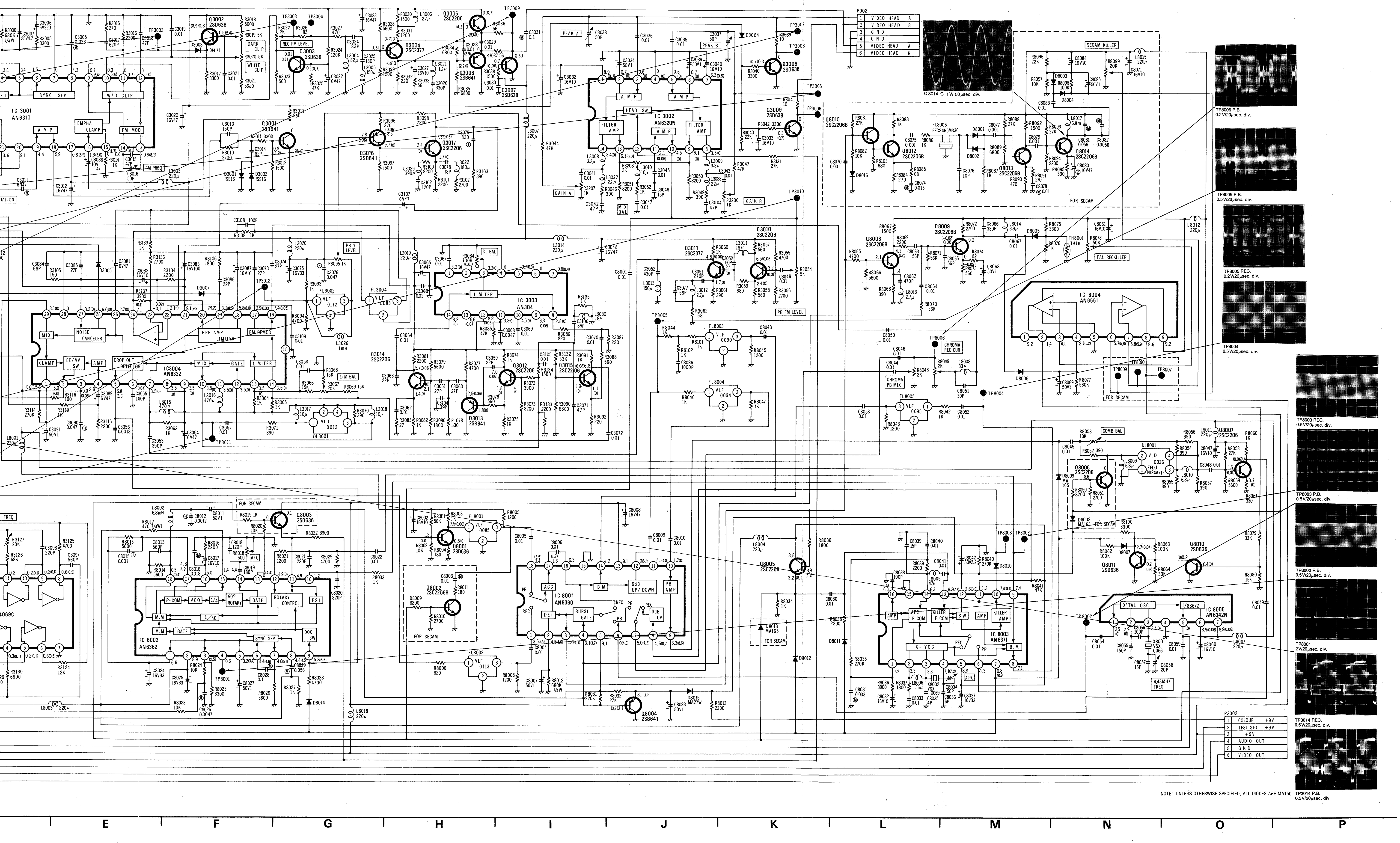
JC (Audio, Lumminance & Chrominance C.B.A)			
PIN NO.	SIGNAL NAME	DESTINATION	
1	—	—	—
2	Vss	JC-1	System Control & Servo Section
3	Pelad Rec 9V	JC-2	System Control & Servo Section
4	Camera Pause	JC-3	System Control & Servo Section
5	Audio Muting	JC-4	System Control & Servo Section

JD (Audio, Lumminance & Chrominance C.B.A)			
PIN NO.	SIGNAL NAME	DESTINATION	
1	Tracking	JD-1	System Control & Servo Section
2	Tracking	JD-2	System Control & Servo Section

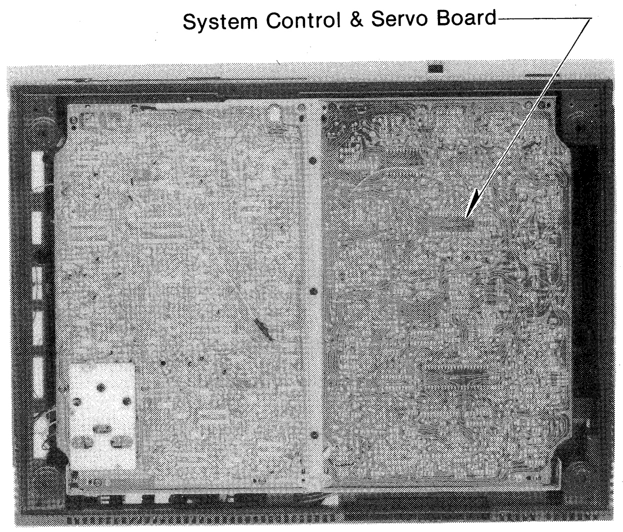
LUMINANCE/CHROMINANCE SCHEMATIC DIAGRAM


7
6
5
4
3
2
1
A
B
C
D
E
F
TP3002 REC. 0.2V/20μsec. div.
TP3001 0.2V/20μsec. div.
TP3003 REC. 0.2V/20μsec. div.
TP3005 P.B. 50mV/5msec. div.
TP3007 REC. 50mV/5msec. div.
TP3009 REC. 2V/20μsec. div.
TP3010 P.B. 0.2V/5msec. div.
TP3011 P.B. 0.5V/5msec. div.
TP3012 P.B. 0.5V/5msec. div.
TP3013 P.B. 0.5V/20μsec. div.
TP3013 REC. 0.2V/20μsec. div.
TP3001
L3001 100μ
EE LEVEL
IC 3001 AN6310
AGC
AMP
DET
SYNC SEP
W/D CLIP
AMP
EMPHA CLAMP
FM MOD
F.M FREQ
DEVIATION
FL3001
VLF 0112
Q3002 2SD636
TP3002
P3004
9V
GND
VIDEO OUT
GND
AUDIO OUT
P3003
EE/VV
REC 9V
GND
9V
9V
P3005
EXCEPT REC 9V
SEARCH
SW PULSE
REF 50Hz
REF 50Hz
P3006
VSS
VSS
DELAYED REC 9V
CAMERA PAUSE
AUDIO MUTING
P3001
AUDIO IN
GND
VIDEO IN
L3023 220μ
Q3018 2SD636
Q3019 2SD636
Q3021 2SC2206
Q3020 2SD636
TP3013
FL3003
VLF 0115
D3008
TP3014
MIX
NOISE CANCELER
CLAMP
EE/VV SW
AMP
DROP OUT DETECTOR
IC3004 AN6332
HPF AMP LIMIT
DELAYED REC 9V
AUDIO OUT
GND
AUDIO IN
REC 9V
EE/VV
AUDIO MUTING
J3001 CAMERA RIMOCON
S3001 INPUT SELECT SW
AV
TUNER
CAMERA
AV
TUNER
CAMERA
AUDIO IN
VIDEO IN
AUDIO OUT
VIDEO OUT
J3002 VIDEO IN
J3003 AUDIO IN
H FREQ
IC 3005 μPD4069C
L8003 220μ
IC 8002 AN6362
P-COM
VCO
M.M
M.M
GATE
1/40
1/4
L8002 6.8mH

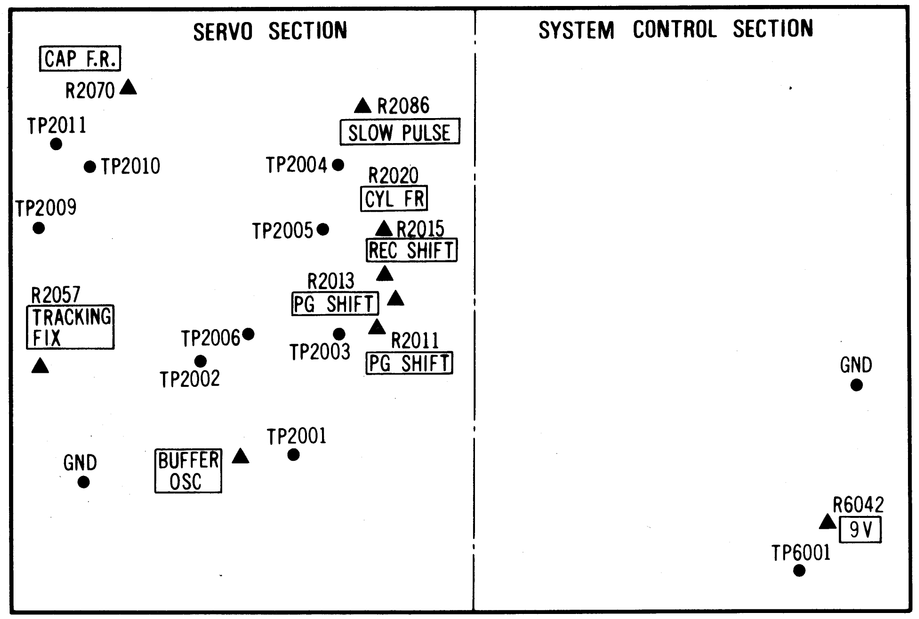
CHEMATIC DIAGRAM

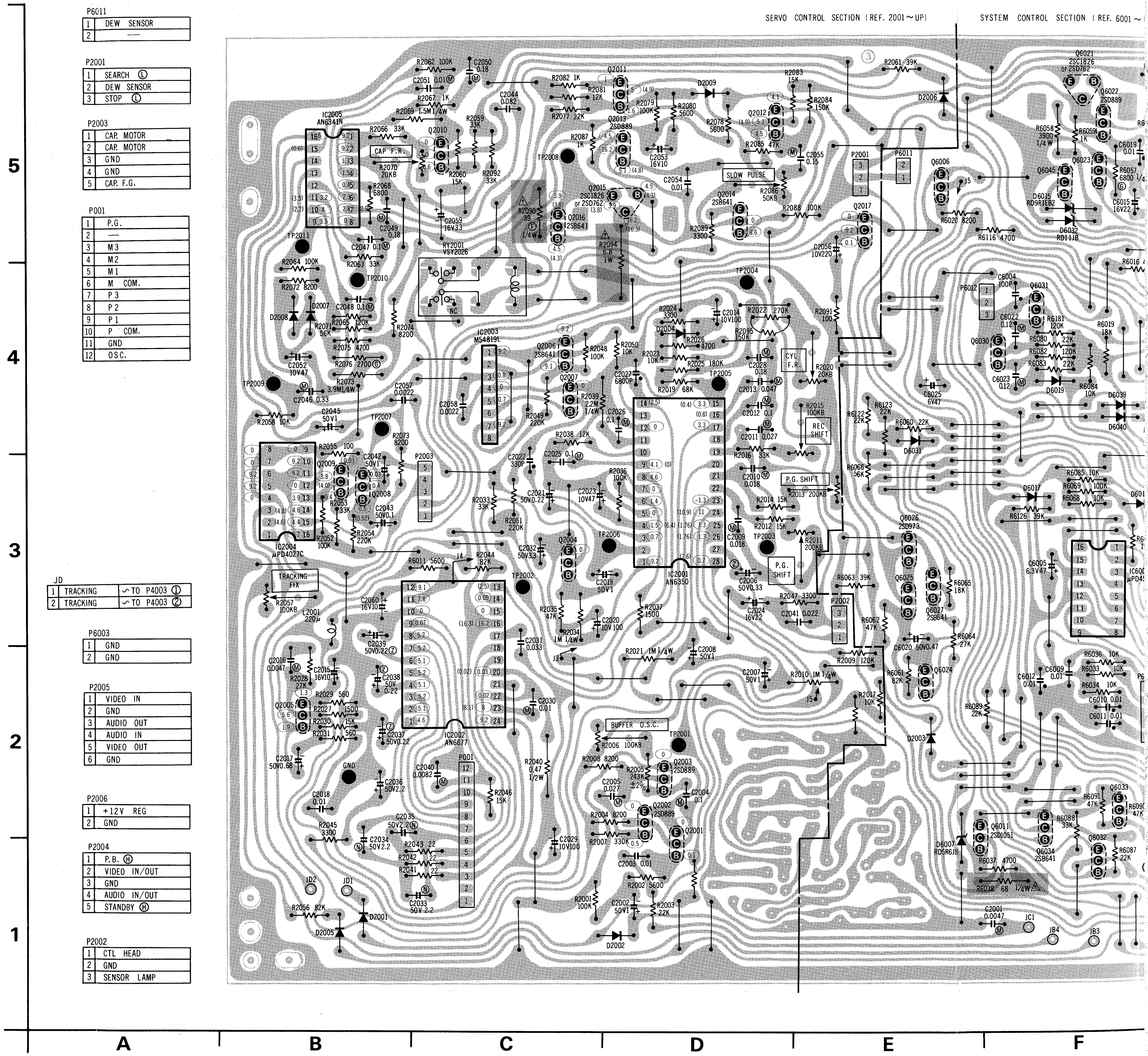

IC 3001 AN6310
SYNC SEP
W/D CLIP
EMPHA CLAMP
FM MOD
FM FREQ
DARK CLIP
WHITE CLIP
REC FM LEVEL
Q3002 2SD636
Q3001 2SB641
Q3003 2SD636
Q3004 2SC2377
Q3005 2SC2206
Q3006 2SB641
Q3007 2SD638
Q3016 2SB641
Q3017 2SC2206
PEAK A
PEAK B
IC 3002 AN6320N
HEAD SW
FILTER AMP
AMP
GAIN A
GAIN B
MIX BAL
Q3008 2SD638
Q3009 2SD638
P002
1 VIDEO HEAD A
2 VIDEO HEAD B
3 GND
4 GND
5 VIDEO HEAD A
6 VIDEO HEAD B
Q8014-C 1V/50μsec. div.
SECAM KILLER
Q8015 2SC2206B
Q8012 2SC2206B
Q8013 2SC2206B
Q8014 2SC2206B
FL8006 EFCS4R5MS3C
FOR SECAM
TP8006 P.B. 0.2V/20μsec. div.
TP8005 P.B. 0.5V/20μsec. div.
TP8005 REC. 0.2V/20μsec. div.
TP8004 0.5V/20μsec. div.
IC 3004 AN6332
IC 3003 AN304
NOISE CANCELER
HPF AMP
LIMITER
FM DEMOD
DROP OUT DETECTOR
EE/VV SW
CLAMP
MIX
GATE
PB Y LEVEL
LIM BAL
DL BAL
DL3001
Q3010 2SC2206
Q3011 2SC2377
Q3012 2SC2206
Q3013 2SB641
Q3014 2SC2206
Q3015 2SC2206
PB FM LEVEL
Q8008 2SC2206B
Q8009 2SC2206B
PAL RECKILLER
IC 8004 AN6551
CHROMA REC CUR
CHROMA PB MIX
COMB BAL
DL8001
Q8006 2SC2206
Q8007 2SC2206
TP8003 REC. 0.5V/20μsec. div.
TP8003 P.B. 0.5V/20μsec. div.
TP8002 P.B. 0.5V/20μsec. div.
TP8001 2V/20μsec. div.
TP3014 REC. 0.5V/20μsec. div.
TP3014 P.B. 0.5V/20μsec. div.
IC 8002 AN6362
P-COM
VCO
1/4
90° ROTARY
GATE
ROTARY CONTROL
FSI
1/40
SYNC SEP
DOC SW
AFC
Q8003 2SD636
Q8001 2SD636
Q8002 2SC2206B
Q8004 2SB641
Q8005 2SC2206
Q8010 2SD636
Q8011 2SD636
IC 8001 AN6360
ACC
DET
BURST GATE
6dB UP/DOWN
3dB UP
PB AMP
IC 8003 AN6371
APC P COM
KILLER P-COM
KILLER AMP
X-VCO
IC 8005 AN6342N
X'TAL OSC
1/88672
4.43MHz FREQ
P3002
1 COLOUR +9V
2 TEST SIG +9V
3 +9V
4 AUDIO OUT
5 GND
6 VIDEO OUT
NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES ARE MA150
E
F
G
H
I
J
K
L
M
N
O
P

SYSTEM CONTROL & SERVO BOARD (VEP02115A)

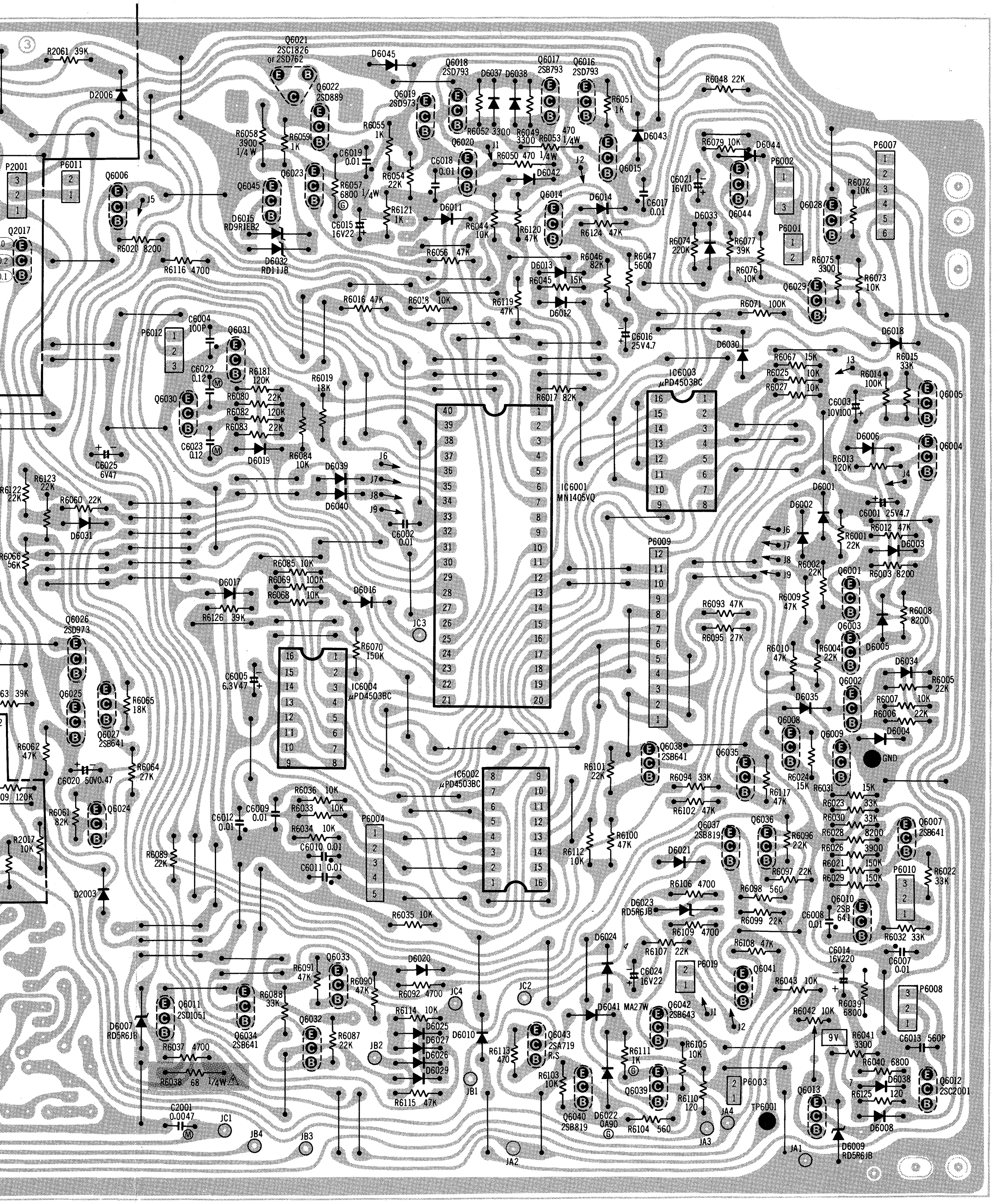

System Control & Servo Board

System Control & Servo C.B.A.					
Q2001	D-1	Q6001	H-3	Q6026	E-3
Q2002	D-2	Q6002	H-3	Q6027	E-3
Q2003	D-2	Q6003	H-3	Q6028	H-5
Q2004	C-3	Q6004	I-4	Q6029	H-4
Q2005	B-2	Q6005	I-4	Q6030	F-4
Q2006	C-4	Q6006	E-5	Q6031	F-4
Q2007	C-4	Q6007	I-2	Q6032	F-1
Q2008	B-3	Q6008	H-3	Q6033	F-2
Q2009	B-3	Q6009	H-3	Q6034	F-2
Q2010	C-5	Q6010	H-2	Q6035	H-3
Q2011	D-5	Q6011	E-1	Q6036	H-2
Q2012	D-5	Q6012	I-1	Q6037	H-2
Q2013	D-5	Q6013	H-1	Q6038	H-3
Q2014	D-5	Q6014	G-5	Q6039	H-1
Q2015	D-5	Q6015	G-5	Q6040	G-1
Q2016	C-5	Q6016	G-5	Q6041	H-2
Q2017	E-5	Q6017	G-5	Q6042	H-2
		Q6018	G-5	Q6043	G-2
IC2001	D-3	Q6019	G-5	Q6044	H-5
IC2002	C-2	Q6020	G-5	Q6045	F-5
IC2003	C-4	Q6021	F-5		
IC2004	B-3	Q6022	F-5	IC6001	G-3
IC2005	B-5	Q6023	F-5	IC6002	G-2
		Q6024	E-2	IC6003	H-4
		Q6025	E-3	IC6004	F-3


SERVO SECTION
SYSTEM CONTROL SECTION
CAP F.R.
R2070
TP2011
TP2010
TP2009
R2086
SLOW PULSE
TP2004
R2020
CYL FR
TP2005
R2015
REC SHIFT
R2013
PG SHIFT
R2057
TRACKING FIX
TP2006
TP2003
R2011
PG SHIFT
TP2002
GND
BUFFER OSC
TP2001
GND
R6042
9V
TP6001


SERVO CONTROL SECTION (REF. 2001~UP)
SYSTEM CONTROL SECTION (REF. 6001~
P6011
1 DEW SENSOR
2 —
P2001
1 SEARCH Ⓛ
2 DEW SENSOR
3 STOP Ⓛ
P2003
1 CAP. MOTOR
2 CAP. MOTOR
3 GND
4 GND
5 CAP. F.G.
P001
1 P.G.
2 —
3 M3
4 M2
5 M1
6 M COM.
7 P3
8 P2
9 P1
10 P COM.
11 GND
12 OSC.
JD
1 TRACKING ✓TO P4003 ①
2 TRACKING ✓TO P4003 ②
P6003
1 GND
2 GND
P2005
1 VIDEO IN
2 GND
3 AUDIO OUT
4 AUDIO IN
5 VIDEO OUT
6 GND
P2006
1 +12V REG
2 GND
P2004
1 P.B. Ⓗ
2 VIDEO IN/OUT
3 GND
4 AUDIO IN/OUT
5 STANDBY Ⓗ
P2002
1 CTL HEAD
2 GND
3 SENSOR LAMP
IC2005 AN6341N
IC2004 μPD4027C
IC2003 M54819L
IC2002 AN6677
IC2001 AN6350
RY2001 VSY2026
CAP F.R.
SLOW PULSE
CYL F.R.
REC SHIFT
P.G. SHIFT
TRACKING FIX
BUFFER O.S.C.
1
2
3
4
5
A
B
C
D
E
F

ION (REF. 2001 ~ UP)   SYSTEM CONTROL SECTION (REF. 6001 ~ UP)


IC6001
MN1405VQ
IC6002
μPD4503BC
IC6003
μPD4503BC
IC6004
μPD4503BC
P2001
P6011
P6012
P6007
P6002
P6001
P6009
P6004
P6010
P6008
P6019
P6003
Q6021
2SC1826
or 2SD762
Q6022
2SD889
Q6018
2SD793
Q6017
2SB793
Q6016
2SD793
Q6019
2SD973
Q6026
2SD973
Q6027
2SB641
Q6038
2SB641
Q6007
2SB641
Q6037
2SB819
Q6040
2SB819
Q6043
2SA719
Q6012
2SC2001
Q6034
2SB641
Q6011
2SD1051
Q6042
2SB643
D6041 MA27W
D6032
RD11JB
D6015
RD9R1EB2
D6023
RD5R6JB
D6007
RD5R6JB
D6009
RD5R6JB
GND
JA1
JA2
JA3
JA4
JB1
JB2
JB3
JB4
JC1
JC2
JC3
JC4
TP6001
E
F
G
H
I

NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES ARE 1SS133T
UNLESS OTHERWISE SPECIFIED, ALL PNP TYPE Tr's ARE 2SC2021

P6001

1	SAFETY TAB
2	CASSETTE DOWN

P6002

1	TIMER IN
2	TIMER SET Ⓗ
3	SAFETY TAB

P6012

1	REEL SENSOR
2	+9V
3	GND

P6007

1	GND
2	CAP MOTOR 18V
3	POWER ON - OFF
4	POWER OFF Ⓛ
5	MOTOR 15V
6	UNREG 15V

JA

1	GND	∽ P3003 ③
2	+9V	∽ P3003 ④ ⑤
3	EE/VV	∽ P3003 ①
4	REC 9V	∽ P3003 ②

JB

1	EXCEPT REC 9V	∽ P3005 ①
2	SEARCH	∽ P3005 ②
3	SW PULSE	∽ P3005 ③
4	REF 50Hz	∽ P3005 ④ ⑤

JC

1	VSS	∽ P3006 ① ②
2	DELAYD REC 9V	∽ P3006 ③
3	CAMERA PAUSE	∽ P3006 ④
4	AUDIO MUTING Ⓗ	∽ P3006 ⑤

P6009

1	GND
2	+5V
3	REC Ⓗ
4	PAUSE Ⓗ
5	B1
6	B2
7	B3
8	B0
9	FWD Ⓛ
10	C0
11	C1
12	DEW

P6010

1	TAKE UP PHOTO TR.
2	SUPPLY PHOTO TR.
3	—

P6019

1	LOADING MOTOR ⊕
2	LOADING MOTOR ⊖

P6008

1	EMITER
2	COLLECTOR
3	BASE

P6004

1	LOADING END SW.
2	F.F./REW END SW.
3	UNLOD END SW.
4	UNLOD END SW.
5	PAUSE END SW.

SYSTEM CONTROL TRANSISTORs D.C. VOLTAGE CHART

REF. NO.	Q6001			Q6002			Q6003			Q6004			Q6005			Q6006		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0	0.6	0	5.1	0	0	0	0.6	0	0.04	0.6	0	0.04	0.3	0	0.6	0.02
PLAY	0	0	0.6	0	5.1	0	0	0	0.6	0	7.8	0.1	0	0	0.6	0	0.6	0.02
REC	0	0	0.6	0	5.1	0	0	0	0.6	0	7.7	0.1	0	0	0.6	0	7.6	0.02
F.F	0	0	0.6	0	5.1	0	0	0	0.6	0	0.04	0.6	0	0.02	0.4	0	0.6	0.02
REW	0	0	0.7	0	5.1	0	0	0.02	0.6	0	0.04	0.6	0	0.03	0.4	0	0.6	0.02
REF. NO.	Q6007			Q6008			Q6009			Q6010			Q6011			Q6012		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	6.2	0	9.1	0	3.7	0	0	4.3	0	6.2	0	9.1	5.1	14.4	5.7	9.2	16.4	9.8
PLAY	6.2	0	9.1	0	3.7	0	0	4.3	0	6.2	0	9.1	5.1	13.1	5.7	9.2	15.9	9.8
REC	6.2	0	9.1	6.2	0	9.1	0	4.3	0	6.2	0	9.1	5.1	13.3	5.7	9.2	15.8	9.8
F.F	6.2	0	9.0	0	3.7	0	0	4.3	0	6.2	0	8.9	5.1	13.4	5.7	9.2	15.7	9.8
REW	6.2	0	9.1	0	3.7	0	0	4.3	0	6.2	0	8.9	5.1	12.9	5.7	9.2	15.6	9.8
REF. NO.	Q6013			Q6014			Q6015			Q6016			Q6017			Q6018		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	5.4	9.8	6	0	0	0.7	0	10.7	0	0	0.3	0	10.7	0.3	10.3	10.7	0.3	10.7
PLAY	5.4	9.8	6	0	0	0.7	0	10.7	0	0	0.3	0	10.6	0.3	10.3	10.6	0.3	10.6
REC	5.4	9.8	6	0	0	0.7	0	10.6	0	0	0.3	0	10.6	0.3	10.3	10.6	0.3	10.6
F.F	5.4	9.8	6	0	0	0.7	0	10.3	0	0	0.3	0	10.3	0.3	10	10.3	0.3	10.3
REW	5.4	9.8	6	0	0	0.7	0	10.3	0	0	0.3	0	10.3	0.3	9.9	10.3	0.3	10.3
REF. NO.	Q6019			Q6020			Q6021			Q6022			Q6023			Q6024		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	0.3	0.1	0.1	10.3	0.7	10.7	19.8	11.1	11.1	18.3	11.5	0	11.5	0.02	0	0	0.6
PLAY	0	0.3	0.1	0.1	10.2	0.7	10.7	17	11.1	11.1	17	11.5	0	11.5	0.02	0	0	0.6
REC	0	0.3	0.1	0.1	10.2	0.7	10.6	17	11	11	17	11.5	0	11.5	0.02	0	0	0.6
F.F	0	0.3	0.1	0.1	9.9	0.7	10.3	16.7	10.9	10.9	16.7	11.5	0	11.5	0.02	0	5.8	0
REW	0	0.3	0.1	0.1	9.9	0.7	10.3	16.6	10.9	10.9	16.6	11.5	0	11.5	0.02	0	5.8	0
REF. NO.	Q6025			Q6026			Q6027			Q6028			Q6029			Q6030		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0.02	10.7	0	0	10.7	0.02	0	0	5.7	0	9.5	0.04	0	0.02	0	0	2	—
PLAY	0.02	10.7	0	0	10.7	0.02	0	0	5.6	0	9.5	0.03	0	0.02	0	0	—	—
REC	0	10.6	0.01	0	10.6	0.01	0	0	5.7	0	9.5	0.04	0	0.02	0	0	—	—
F.F	5.2	10.3	5.8	4.6	10.3	5.2	4.6	0	5.6	0	9.5	0.03	0	0.02	0	0	—	0
REW	5.2	10.3	5.8	4.6	10.3	5.2	4.6	0	5.6	0	9.5	0.03	0	0.02	0	0	—	0
REF. NO.	Q6031			Q6032			Q6033			Q6034			Q6035			Q6036		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0	—	—	0.2	0.2	0.9	0	8.8	0	5.1	0	5.1	0	0	0	0	0.7	0
PLAY	0	—	—	5.1	4.2	3.1	0	8.8	0	5.1	0	5.1	0	0	0	0	0.7	0
REC	0	8.8	0	5.1	4.2	3.1	0	8.8	0	5.1	0	5.1	0	2.6	0	0	0.03	0.6
F.F	0	—	0	5.1	4.2	3.1	0	8.8	0	5.1	0	5.1	0	0	0	0	0	0
REW	0	—	—	5	4.2	3.1	0	8.8	0	5.1	0	5.1	0	0	0	0	0.7	0
REF. NO.	Q6037			Q6038			Q6039			Q6040			Q6041			Q6042		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	0.7	0	0.7	5.1	0	5.1	0	8.8	0	9.2	0.7	8.9	0	8.5	0	9.2	9.2	8.5
PLAY	0.7	0	0.7	5.1	0	5.1	0	0	0	9.2	0.7	9.2	0	9.2	0	9.2	0	9.2
REC	8.9	8.7	8.2	5.1	0	5.1	0	0.06	0.7	9.2	8.9	8.4	0	8.5	0	9.2	9.2	8.5
F.F	0.7	0	0.7	5.1	0	5.1	0	8.8	0	9.2	0.7	8.9	0	8.5	0	9.2	9.2	8.5
REW	0.7	0	0.7	5.1	0	5.1	0	8.8	0	9.2	0.7	8.9	0	8.5	0	9.2	9.2	8.5
REF. NO.	Q6043			Q6044			Q6045			Q6201			Q6202			Q6203		
MODE	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
STOP	9.2	9	8.4	0	2.6	0	0	3.2	0.2	0	5	0	0	0	0	0	0.3	0
PLAY	9.2	9	8.4	0	4.9	0	0	3.1	0.2	0	5	0	0	0	0	0	0	0
REC	0	9	8.4	0	4.9	0	0	3.1	0.2	0	5	0	0	0	0	0	0	0
F.F	0	9	8.4	0	4.9	0	0	3.1	0.2	0	5	0	0	0	0	0	0	0
REW	9.2	9	8.4	0	4.9	0	0	3.1	0.2	0	5	0	0	0	0	0	0	0
REF. NO.	Q6204			Q6205														
MODE	E	C	B	E	C	B												
STOP	0	0.4	0.4	0	0	0												
PLAY	0	0	0	0	0	0												
REC	0	0	0	0	0	0												
F.F	0	0	0	0	0	0												
REW	0	0	0	0	0	0												

SYSTEM CONTROL ICs D.C. VOLTAGE CHART

REF. NO. MODE	IC6001															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STOP	0	0.02	0.02	0.08	0.02	0.02	0.09	0.03	0.03	4.9	4.9	4.9	4.9	0.9	0.7	0.2
PLAY	0	0.02	0.02	0.07	0.02	0.02	5	0.02	0.03	4.9	4.9	4.9	4.9	—	0.3	0.1
REC	0	0.02	0.02	0.07	0.02	0.02	5	0	0.03	4.9	4.9	4.9	4.9	—	0.2	0.1
F.F	0	0.02	0.02	0.07	0.02	0.02	0.09	0.03	0.03	4.9	4.9	4.9	4.9	—	—	0.1
REW	0	0.02	0.02	0.08	0.02	0.02	0.09	0.03	0.03	4.9	4.9	4.9	4.9	0	—	0.1

REF. NO. MODE	IC6001															
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
STOP	0.02	0.2	0.2	0	0	0.1	0.2	0.1	5.1	0	5.1	0	0	2.9	4.4	4.5
PLAY	0.1	0.1	0.1	0	0.02	0.1	5.1	0.1	5.1	0	5.1	0	0	2.9	4.4	4.5
REC	0	0.1	0.1	0.01	0	0.1	5.1	0.1	5.1	0	5.1	0	0	2.9	4.4	4.5
F.F	0.1	0	0.1	0	0	0.1	5.1	0.1	5.1	0	5.1	0	0	2.9	0.05	4.5
REW	0.1	0.1	0.1	0	0	0	5	0.1	5	0	5.1	0	0	2.9	0.05	0.08

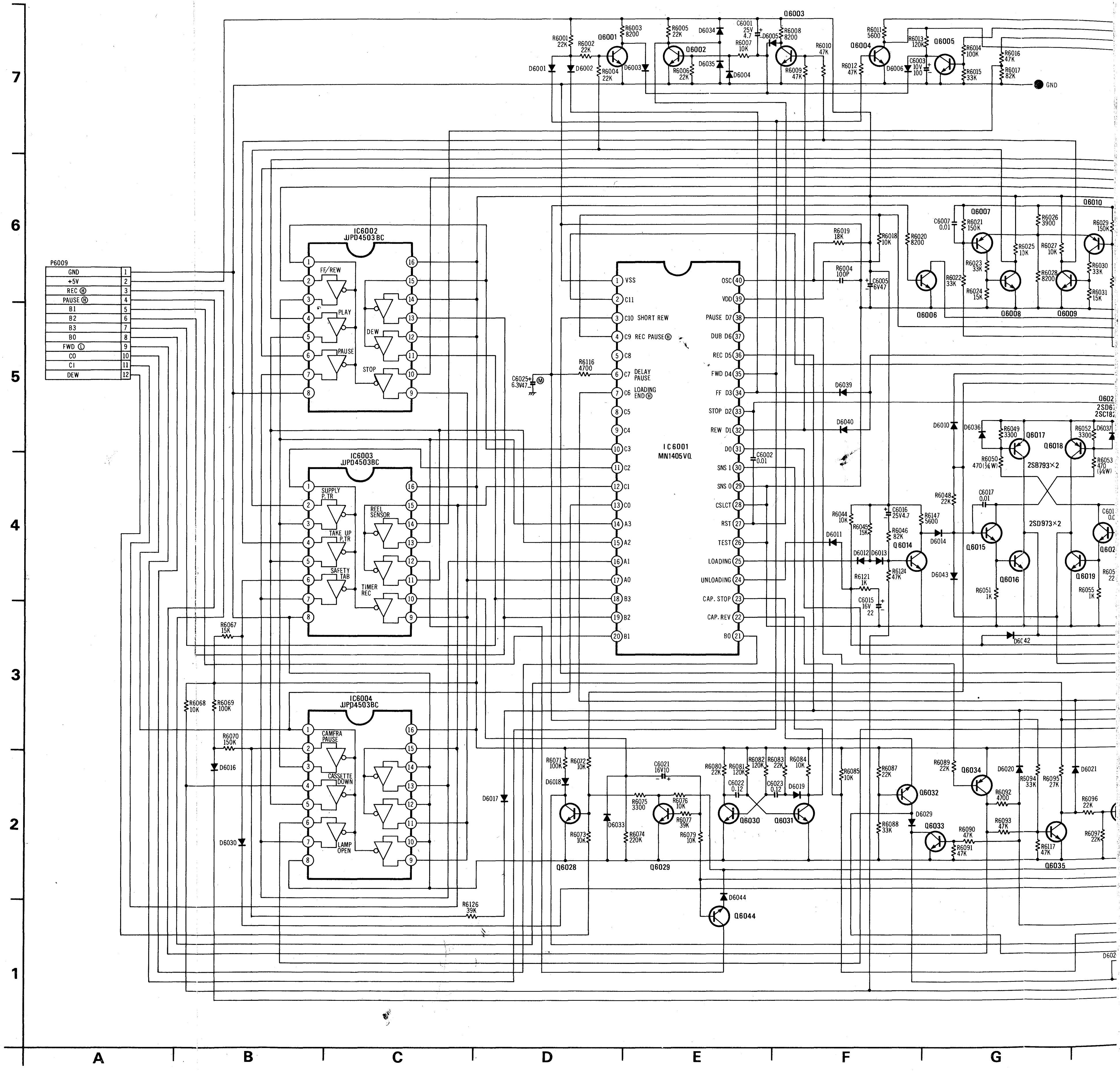
REF. NO. MODE	IC6001							
	33	34	35	36	37	38	39	40
STOP	0.05	5.1	4.5	5.1	5.1	5.1	5.1	1.8
PLAY	5.1	5.1	0.09	5.1	5.1	5.1	5.1	1.8
REC	5.1	5.1	0.09	0.1	5.1	5.1	5.1	1.8
F.F	5.1	0.1	4.5	5.1	5.1	5.1	5.1	1.8
REW	5.1	5.1	4.5	5.1	5.1	5.1	5.1	1.8

REF. NO. MODE	IC6002															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STOP	4.9	0	0.9	5.1	0	5.1	0.2	0	0.02	0	0.2	5.1	0.2	5.1	4.9	5.1
PLAY	4.9	5.1	0.4	0	0.2	5.1	0.1	0	0.1	5.1	0.2	5.1	0.1	5.1	4.9	5.1
REC	4.9	5.1	0.4	0	0.2	5.1	0.1	0	0.1	5.1	0.1	5.1	0.1	5.1	4.9	5.1
F.F	4.9	0	0.3	5.11	0.3	5.1	0.1	0	0.1	5.1	0.1	5.1	0.1	5.1	4.9	5.1
REW	4.9	0	0.3	5.1	0.3	5.1	0.1	0	0.1	5.1	0.1	5.1	0.1	5.1	4.9	5.1

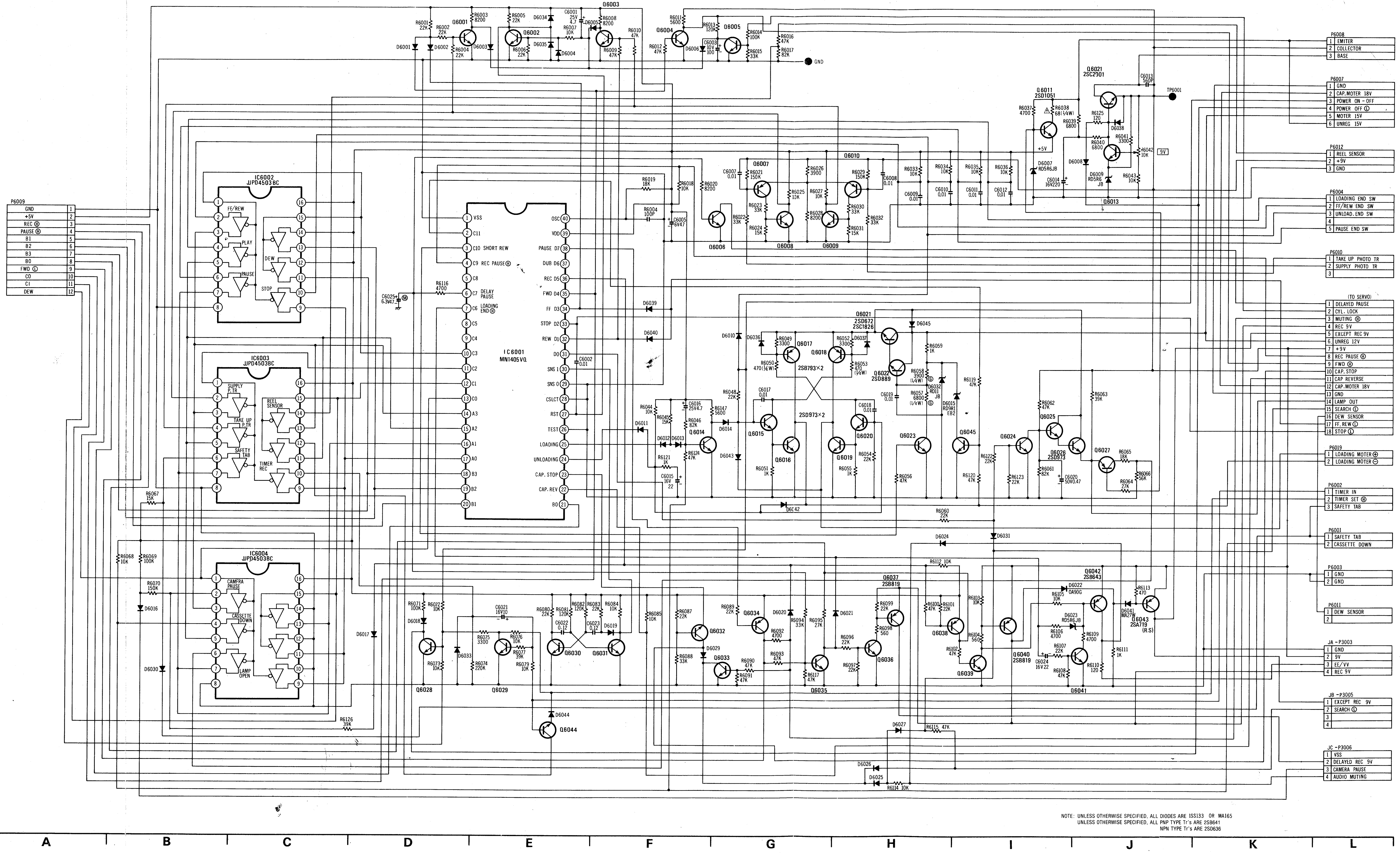
REF. NO. MODE	IC6003															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STOP	4.9	3.7	0.7	0	0.7	0.5	0	0	0.02	0	0	4.9	0.7	0	0	0
PLAY	4.9	3.7	0.5	4.3	0.2	0.5	0.2	0	0.2	0	0.2	4.9	0.5	3.9	5	5.1
REC	4.9	3.7	0.5	4.3	0.2	0.5	0.2	0	0.1	0	0.2	4.9	0.5	0	4.9	5.1
F.F	4.9	3.7	0.4	4.3	0.3	0.5	0.1	0	0.1	0	0.3	4.9	0.5	—	4.9	5.1
REW	4.9	3.7	0.4	4.3	0.3	0.5	0.1	0	0.1	0	0.3	0	0.3	—	4.9	5.1

REF. NO. MODE	IC6004															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
STOP	4.9	4.9	0.7	0	0.7	0	0.2	0	0.02	0	0.02	0	0.2	0	4.9	5.1
PLAY	4.9	5	0.5	0	0.2	0	0.1	0	0.1	0	0.1	0	0.1	0	4.9	5.1
REC	4.9	5	0.5	0	0.2	0	0.1	0	0.1	0	0.1	0	0.1	0	4.9	5.1
F.F	4.9	5	0.3	0	0.4	0	0.1	0	0.1	0	0.1	0	0.1	0	4.9	5.1
REW	4.9	5	0.5	0	0.4	0	0.2	0	0.1	5.1	0.1	5.1	0.1	5.1	4.9	5.1

SYSTEM CONTROL SCHEMATIC DIAGRAM


7
6
5
4
3
2
1
A
B
C
D
E
F
G
P6009
GND 1
+5V 2
REC Ⓗ 3
PAUSE Ⓗ 4
B1 5
B2 6
B3 7
B0 8
FWD Ⓛ 9
C0 10
CI 11
DEW 12
IC6002
μPD4503BC
FF/REW
PLAY
PAUSE
DEW
STOP
IC6003
μPD4503BC
SUPPLY P.TR
TAKE UP P.TR
SAFETY TAB
REEL SENSOR
TIMER REC
IC6004
μPD4503BC
CAMERA PAUSE
CASSETTE DOWN
LAMP OPEN
IC6001
MN1405VQ
VSS
C11
C10 SHORT REW
C9 REC PAUSEⒽ
C8
C7 DELAY PAUSE
C6 LOADING ENDⒽ
C5
C4
C3
C2
C1
C0
A3
A2
A1
A0
B3
B2
B1
OSC
VDD
PAUSE D7
DUB D6
REC D5
FWD D4
FF D3
STOP D2
REW D1
D0
SNS 1
SNS 0
CSLCT
RST
TEST
LOADING
UNLOADING
CAP. STOP
CAP. REV
B0
R6116 4700
C6025 6.3V47 Ⓜ
C6002 0.01
R6067 15K
R6068 10K
R6069 100K
R6070 150K
R6126 39K
Q6001
Q6002
Q6003
Q6004
Q6005
Q6006
Q6007
Q6008
Q6009
Q6010
Q6014
Q6015
Q6016
Q6017
Q6018
Q6019
Q6028
Q6029
Q6030
Q6031
Q6032
Q6033
Q6034
Q6035
Q6044
2SB793×2
2SD973×2
GND

SYSTEM CONTROL SCHEMATIC DIAGRAM


P6009
1 GND
2 +5V
3 REC Ⓗ
4 PAUSE Ⓗ
5 B1
6 B2
7 B3
8 B0
9 FWD Ⓛ
10 C0
11 C1
12 DEW
IC6002 JUPD4503BC
FF/REW
PLAY
PAUSE
STOP
DEW
IC6003 JUPD4503BC
SUPPLY P.TR
TAKE UP P.TR
SAFETY TAB
REEL SENSOR
TIMER REC
IC6004 JUPD4503BC
CAMERA PAUSE
CASSETTE DOWN
LAMP OPEN
IC6001 MN1405VQ
1 VSS
2 C11
3 C10 SHORT REW
4 C9 REC PAUSE Ⓗ
5 C8
6 C7 DELAY PAUSE
7 C6 LOADING END Ⓗ
8 C5
9 C4
10 C3
11 C2
12 C1
13 C0
14 A3
15 A2
16 A1
17 A0
18 B3
19 B2
20 B1
40 OSC
39 VDD
38 PAUSE D7
37 DUB D6
36 REC D5
35 FWD D4
34 FF D3
33 STOP D2
32 REW D1
31 D0
30 SNS 1
29 SNS 0
28 CSLCT
27 RST
26 TEST
25 LOADING
24 UNLOADING
23 CAP. STOP
22 CAP. REV
21 B0
Q6001
Q6002
Q6003
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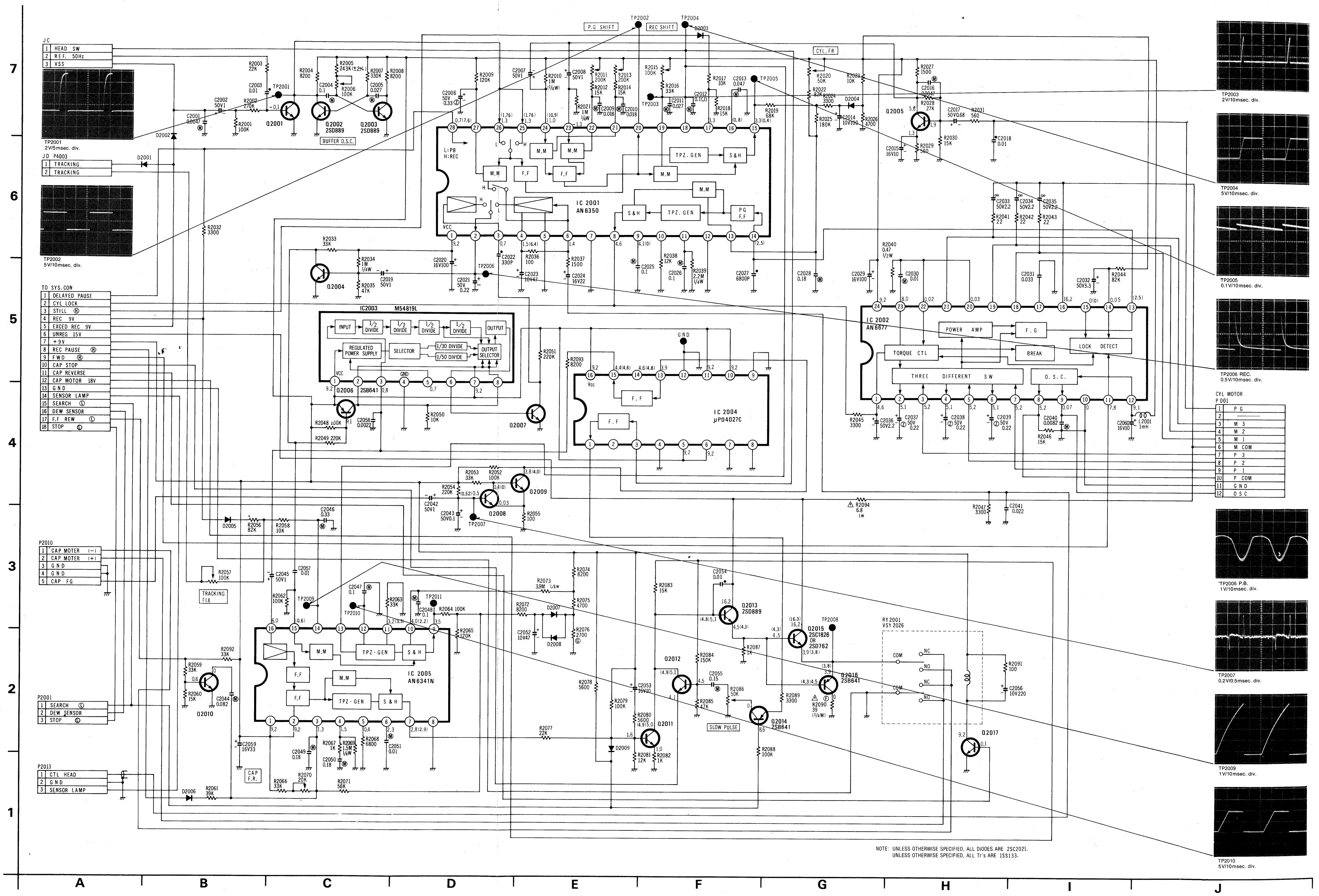
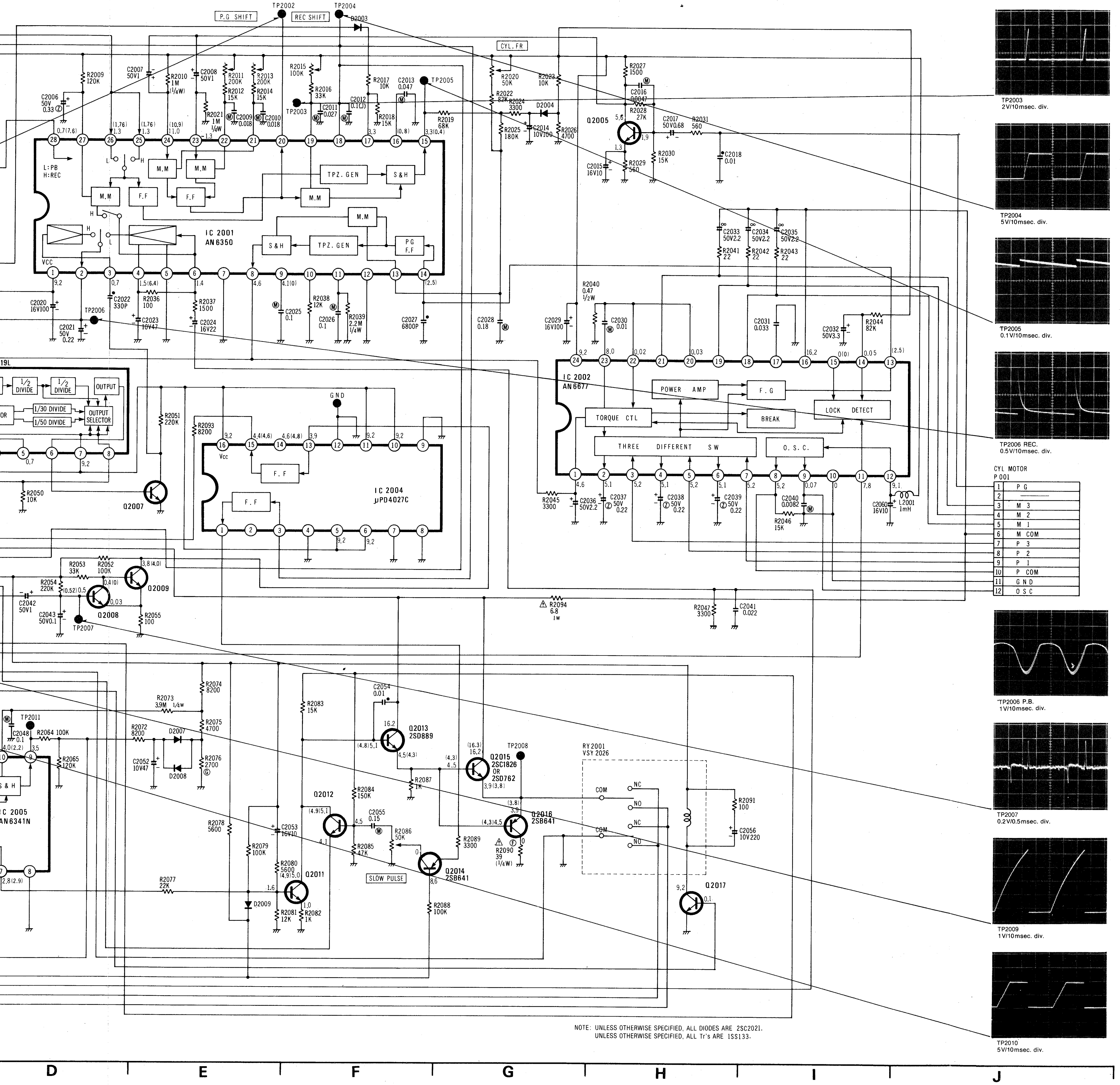
Q6010
Q6011 2SD1051
Q6013
Q6014
Q6015
Q6016
Q6017
Q6018
Q6019
Q6020
Q6021 2SC2901
Q6021 2SD672 2SC1826
Q6022 2SD889
Q6023
Q6024
Q6025
Q6026 2SD973
Q6027
Q6028
Q6029
Q6030
Q6031
Q6032
Q6033
Q6034
Q6035
Q6036
Q6037 2SB819
Q6038
Q6039
Q6040 2SB819
Q6041
Q6042 2SB643
Q6043 2SA719 (R.S)
Q6044
Q6045
2SB793×2
2SD973×2
GND
TP6001
9V
+5V
P6008
1 EMITER
2 COLLECTOR
3 BASE
P6007
1 GND
2 CAP.MOTER 18V
3 POWER ON - OFF
4 POWER OFF Ⓛ
5 MOTER 15V
6 UNREG 15V
P6012
1 REEL SENSOR
2 +9V
3 GND
P6004
1 LOADING END SW
2 FF/REW END SW
3 UNLOAD. END SW
4
5 PAUSE END SW
P6010
1 TAKE UP PHOTO TR
2 SUPPLY PHOTO TR
3
(TO SERVO)
1 DELAYED PAUSE
2 CYL. LOCK
3 MUTING Ⓗ
4 REC 9V
5 EXCEPT REC 9V
6 UNREG 12V
7 +9V
8 REC PAUSE Ⓗ
9 FWD Ⓗ
10 CAP. STOP
11 CAP. REVERSE
12 CAP.MOTER 18V
13 GND
14 LAMP OUT
15 SEARCH Ⓛ
16 DEW SENSOR
17 FF. REW Ⓛ
18 STOP Ⓛ
P6019
1 LOADING MOTER ⊕
2 LOADING MOTER ⊖
P6002
1 TIMER IN
2 TIMER SET Ⓗ
3 SAFETY TAB
P6001
1 SAFETY TAB
2 CASSETTE DOWN
P6003
1 GND
2 GND
P6011
1 DEW SENSOR
2
JA - P3003
1 GND
2 9V
3 EE/VV
4 REC 9V
JB - P3005
1 EXCEPT REC 9V
2 SEARCH Ⓛ
3
4
JC - P3006
1 VSS
2 DELAYED REC 9V
3 CAMERA PAUSE
4 AUDIO MUTING
A
B
C
D
E
F
G
H
I
J
K
L

NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES ARE 1SS133 OR MA165
UNLESS OTHERWISE SPECIFIED, ALL PNP TYPE Tr's ARE 2SB641
NPN TYPE Tr's ARE 2SD636

SERVO SCHEMATIC DIAGRAM


JC
1 HEAD SW
2 REF. 50Hz
3 VSS
TP2001 2V/5msec. div.
JD P4003
1 TRACKING
2 TRACKING
TP2002 5V/10msec. div.
TO SYS.CON
1 DELAYED PAUSE
2 CYL LOCK
3 STILL Ⓗ
4 REC 9V
5 EXCED REC 9V
6 UNREG 15V
7 +9V
8 REC PAUSE Ⓗ
9 FWD Ⓗ
10 CAP STOP
11 CAP REVERSE
12 CAP MOTOR 18V
13 GND
14 SENSOR LAMP
15 SEARCH Ⓛ
16 DEW SENSOR
17 F.F REW Ⓛ
18 STOP Ⓛ
P2010
1 CAP MOTER (−)
2 CAP MOTER (+)
3 GND
4 GND
5 CAP FG
P2001
1 SEARCH Ⓛ
2 DEW SENSOR
3 STOP Ⓛ
P2013
1 CTL HEAD
2 GND
3 SENSOR LAMP
TRACKING FIX
CAP F.R.
Q2001
Q2002 2SD889
Q2003 2SD889
BUFFER O.S.C.
P.G SHIFT
REC SHIFT
TP2002
TP2003
TP2004
TP2005
TP2006
TP2007
TP2008
TP2009
TP2010
TP2011
CYL.FR
IC 2001 AN6350
L:PB H:REC
M.M
F.F
S&H
TPZ. GEN
PG F.F
Q2004
IC2003 M54819L
INPUT
1/2 DIVIDE
OUTPUT
REGULATED POWER SUPPLY
SELECTOR
1/30 DIVIDE
1/50 DIVIDE
OUTPUT SELECTOR
VCC
GND
Q2006 2SB641
Q2007
IC 2004 µPD4027C
IC 2002 AN6677
POWER AMP
F.G
TORQUE CTL
BREAK
LOCK DETECT
THREE DIFFERENT SW
O.S.C.
Q2005
CYL MOTOR P001
1 P G
2
3 M 3
4 M 2
5 M 1
6 M COM
7 P 3
8 P 2
9 P 1
10 P COM
11 GND
12 OSC
Q2008
Q2009
Q2010
IC 2005 AN6341N
TPZ·GEN
Q2011
Q2012
Q2013 2SD889
Q2014 2SB641
Q2015 2SC1826 OR 2SD762
Q2016 2SB641
Q2017
SLOW PULSE
RY2001 VSY 2026
COM
NC
NO
D2001
D2002
D2003
D2004
D2005
D2006
D2007
D2008
D2009
L2001 1mH
R2094 6.8 1W
TP2003 2V/10msec. div.
TP2004 5V/10msec. div.
TP2005 0.1V/10msec. div.
TP2006 REC. 0.5V/10msec. div.
TP2006 P.B. 1V/10msec. div.
TP2007 0.2V/0.5msec. div.
TP2009 1V/10msec. div.
TP2010 5V/10msec. div.
A
B
C
D
E
F
G
H
I
J
1
2
3
4
5
6
7

NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES ARE 2SC2021.
UNLESS OTHERWISE SPECIFIED, ALL Tr's ARE 1SS133.


P.G SHIFT
REC SHIFT
TP2002
TP2004
TP2003
TP2005
TP2006
TP2007
TP2008
TP2011
CYL.FR
L:PB
H:REC
IC 2001
AN6350
M.M
F.F
TPZ. GEN
S&H
PG F.F
IC 2002
AN6677
POWER AMP
F.G
TORQUE CTL
BREAK
LOCK DETECT
THREE DIFFERENT SW
O.S.C.
IC 2004
μPD4027C
GND
1/2 DIVIDE
OUTPUT
1/30 DIVIDE
1/50 DIVIDE
OUTPUT SELECTOR
IC 2005
AN6341N
Q2005
Q2007
Q2008
Q2009
Q2011
Q2012
Q2013 2SD889
Q2014 2SB641
Q2015 2SC1826 OR 2SD762
Q2016 2SB641
Q2017
RY2001 VSY 2026
COM
NC
NO
SLOW PULSE
CYL MOTOR P001
1 PG
2
3 M3
4 M2
5 M1
6 M COM
7 P3
8 P2
9 P1
10 P COM
11 GND
12 OSC
TP2003 2V/10msec. div.
TP2004 5V/10msec. div.
TP2005 0.1V/10msec. div.
TP2006 REC. 0.5V/10msec. div.
TP2006 P.B. 1V/10msec. div.
TP2007 0.2V/0.5msec. div.
TP2009 1V/10msec. div.
TP2010 5V/10msec. div.
D
E
F
G
H
I
J

NOTE: UNLESS OTHERWISE SPECIFIED, ALL DIODES ARE 2SC2021.
UNLESS OTHERWISE SPECIFIED, ALL Tr's ARE 1SS133.

P2001 (System Control & Servo C.B.A)

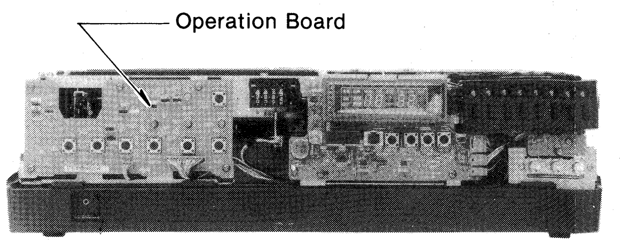
PIN NO.	SIGNAL NAME	DESTINATION
1	Search (L)	P6202-1 Operation Section
2	Dew Sensor	P6202-2 Operation Section
3	Stop (L)	P6202-3 Operation Section

P001 (System Control & Servo C.B.A)

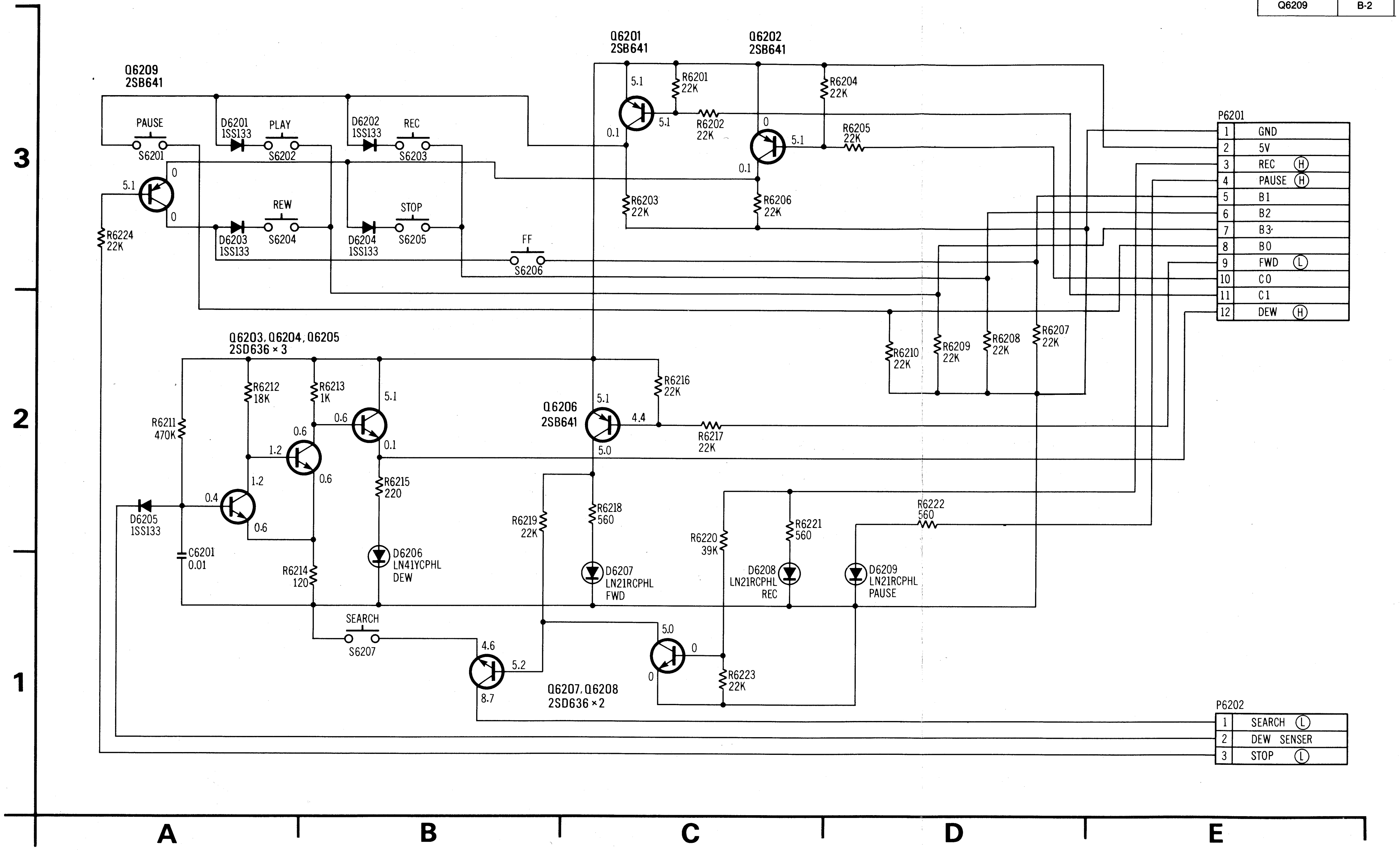
PIN NO.	SIGNAL NAME	DESTINATION
1	PG	D.D Cylinder
2	—	—
3	M3	D.D Cylinder
4	M2	D.D Cylinder
5	M1	D.D Cylinder
6	M Com	D.D Cylinder
7	P3	D.D Cylinder
8	P2	D.D Cylinder
9	P1	D.D Cylinder
10	P Com	D.D Cylinder
11	GND	D.D Cylinder
12	OSC	D.D Cylinder

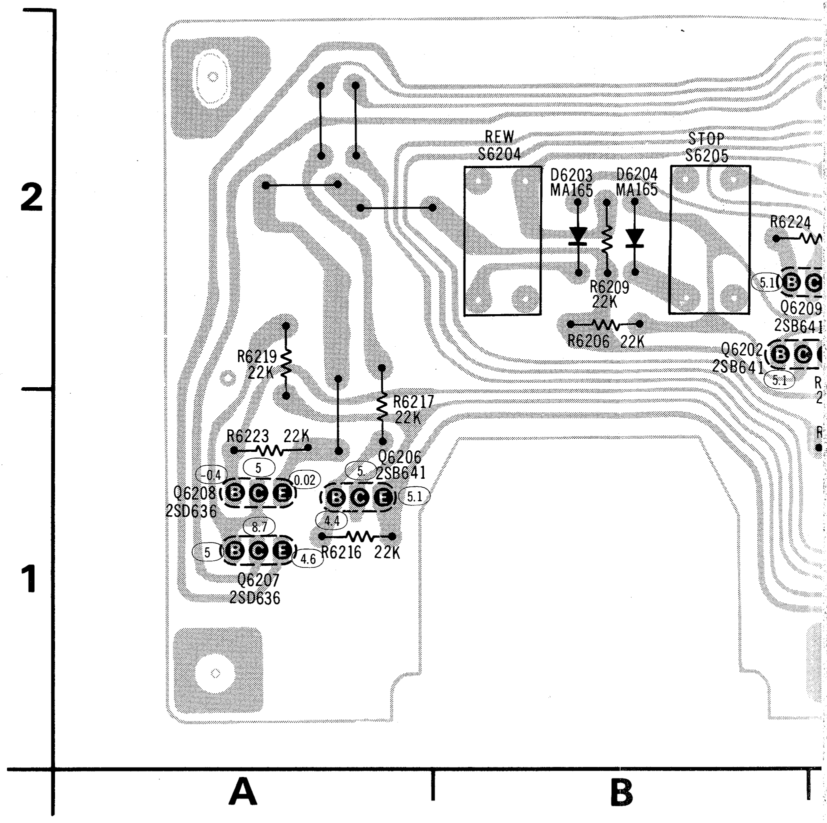
OPERATION SCHEMATIC DIAGRAM

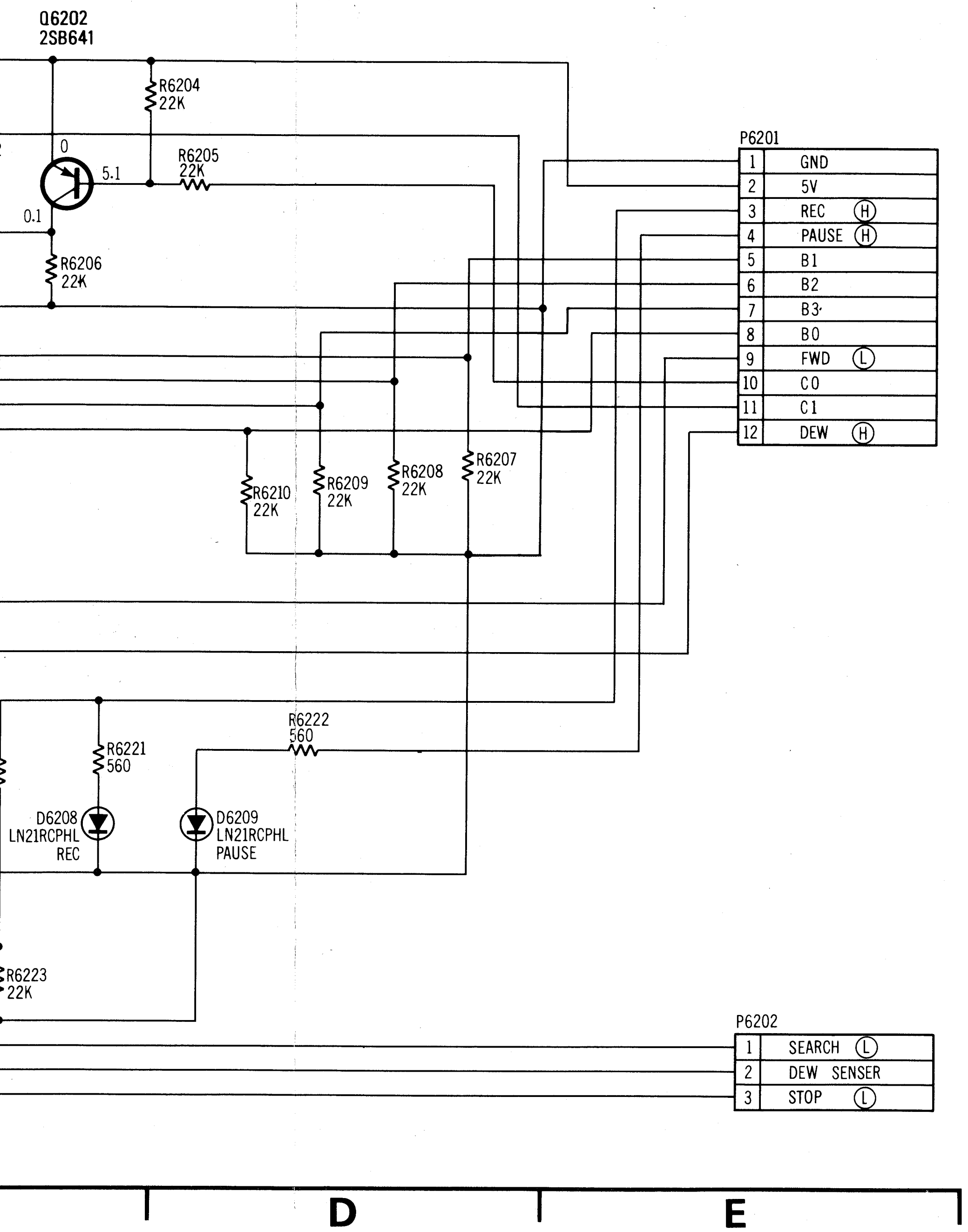
Operation C.B.A.	
Q6201	C-1
Q6202	B-2
Q6203	C-1
Q6204	D-1
Q6205	D-1
Q6206	A-1
Q6207	A-1
Q6208	A-1
Q6209	B-2


Operation Board

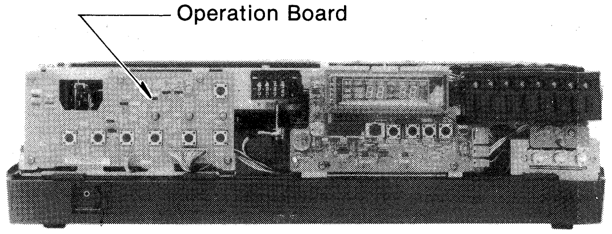
OPI


3
2
1
A
B
C
D
E
Q6209
2SB641
PAUSE
S6201
D6201
1SS133
PLAY
S6202
D6202
1SS133
REC
S6203
REW
S6204
STOP
S6205
D6203
1SS133
D6204
1SS133
FF
S6206
R6224
22K
5.1
0
0
Q6201
2SB641
Q6202
2SB641
R6201
22K
R6202
22K
R6203
22K
R6204
22K
R6205
22K
R6206
22K
5.1
0.1
5.1
0
0.1
5.1
P6201
1 GND
2 5V
3 REC Ⓗ
4 PAUSE Ⓗ
5 B1
6 B2
7 B3
8 B0
9 FWD Ⓛ
10 C0
11 C1
12 DEW Ⓗ
R6210
22K
R6209
22K
R6208
22K
R6207
22K
Q6203, Q6204, Q6205
2SD636 × 3
R6211
470K
R6212
18K
R6213
1K
R6214
120
R6215
220
R6216
22K
R6217
22K
Q6206
2SB641
5.1
4.4
5.0
0.6
1.2
0.6
1.2
0.4
0.6
0.6
5.1
0.1
D6205
1SS133
C6201
0.01
D6206
LN41YCPHL
DEW
R6218
560
R6219
22K
D6207
LN21RCPHL
FWD
R6220
39K
R6221
560
D6208
LN21RCPHL
REC
R6222
560
D6209
LN21RCPHL
PAUSE
SEARCH
S6207
4.6
5.2
8.7
5.0
0
0
R6223
22K
Q6207, Q6208
2SD636 × 2
P6202
1 SEARCH Ⓛ
2 DEW SENSER
3 STOP Ⓛ

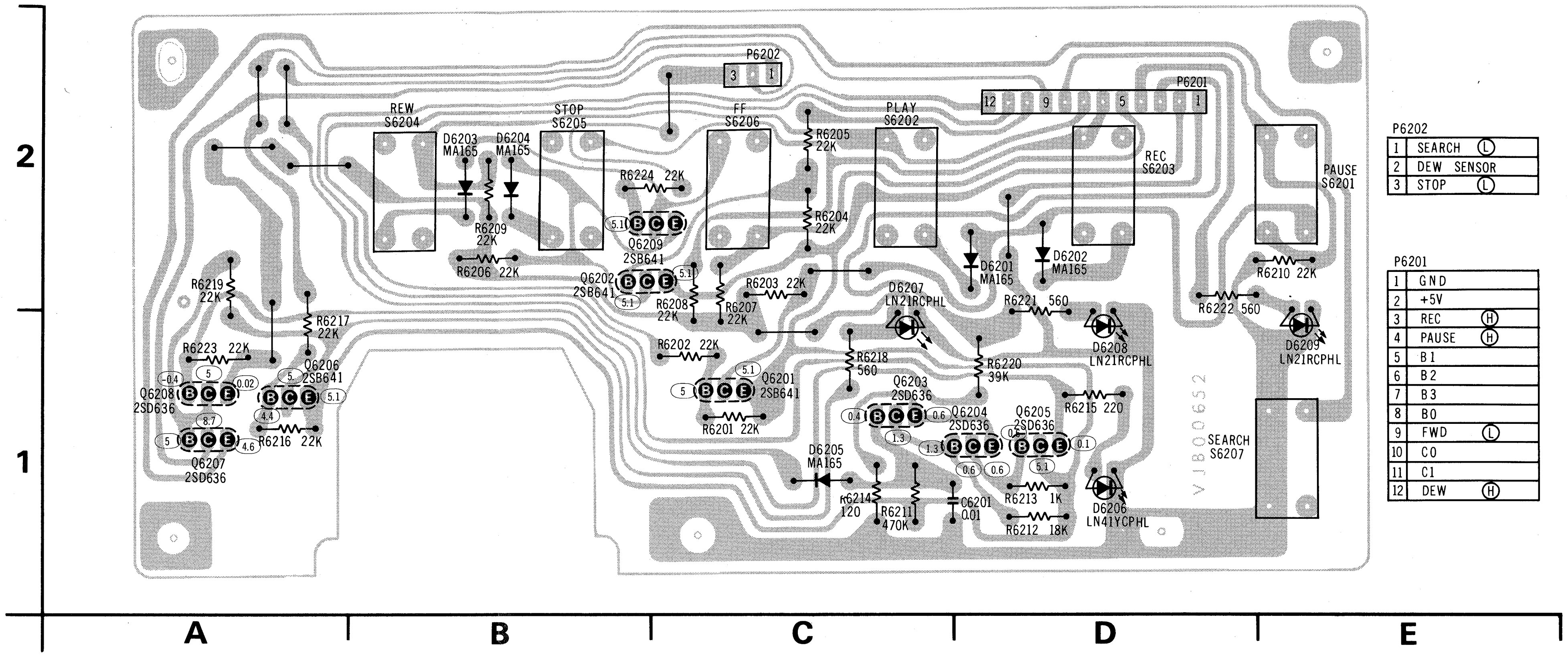

2
1
A
B
REW
S6204
STOP
S6205
D6203
MA165
D6204
MA165
R6224
R6209
22K
R6206 22K
Q6209
2SB641
Q6202
2SB641
5.1
R6219
22K
R6217
22K
R6223 22K
Q6206
2SB641
Q6208
2SD636
-0.4
5
0.02
5
5.1
8.7
4.4
5
4.6
R6216 22K
Q6207
2SD636
B C E


Q6202
2SB641
R6204 22K
R6205 22K
R6206 22K
0
5.1
0.1
P6201
1 GND
2 5V
3 REC Ⓗ
4 PAUSE Ⓗ
5 B1
6 B2
7 B3
8 B0
9 FWD Ⓛ
10 C0
11 C1
12 DEW Ⓗ
R6210 22K
R6209 22K
R6208 22K
R6207 22K
R6221 560
R6222 560
D6208 LN21RCPHL REC
D6209 LN21RCPHL PAUSE
R6223 22K
P6202
1 SEARCH Ⓛ
2 DEW SENSER
3 STOP Ⓛ
D
E

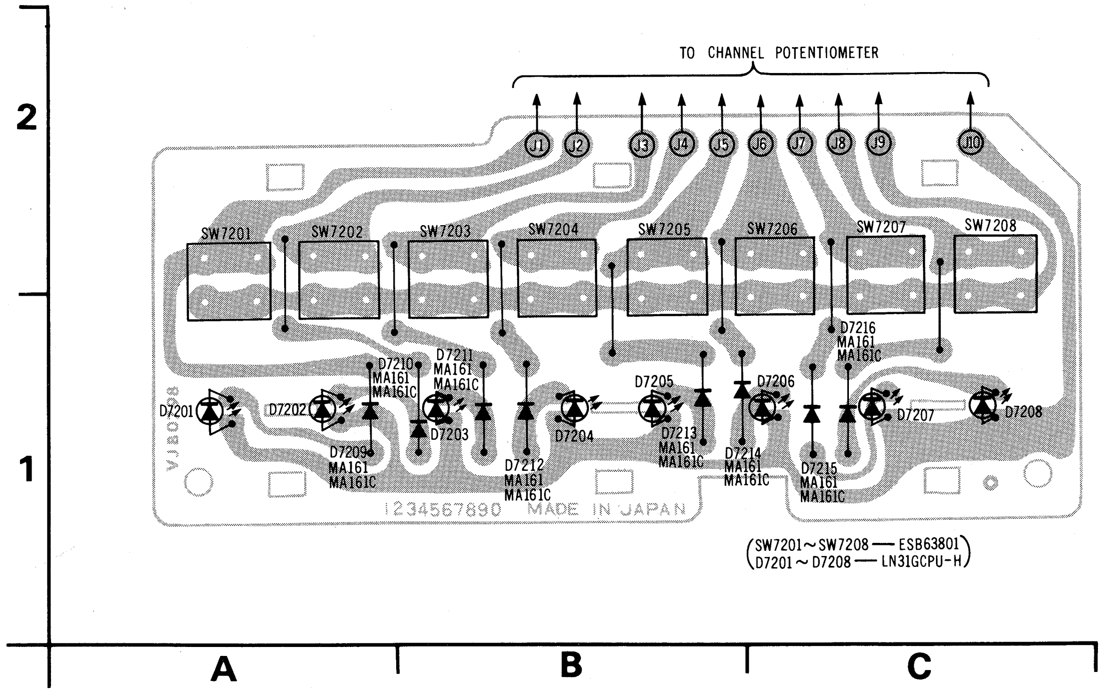
Operation C.B.A.	
Q6201	C-1
Q6202	B-2
Q6203	C-1
Q6204	D-1
Q6205	D-1
Q6206	A-1
Q6207	A-1
Q6208	A-1
Q6209	B-2


Operation Board

OPERATION BOARD (VEP00652A)

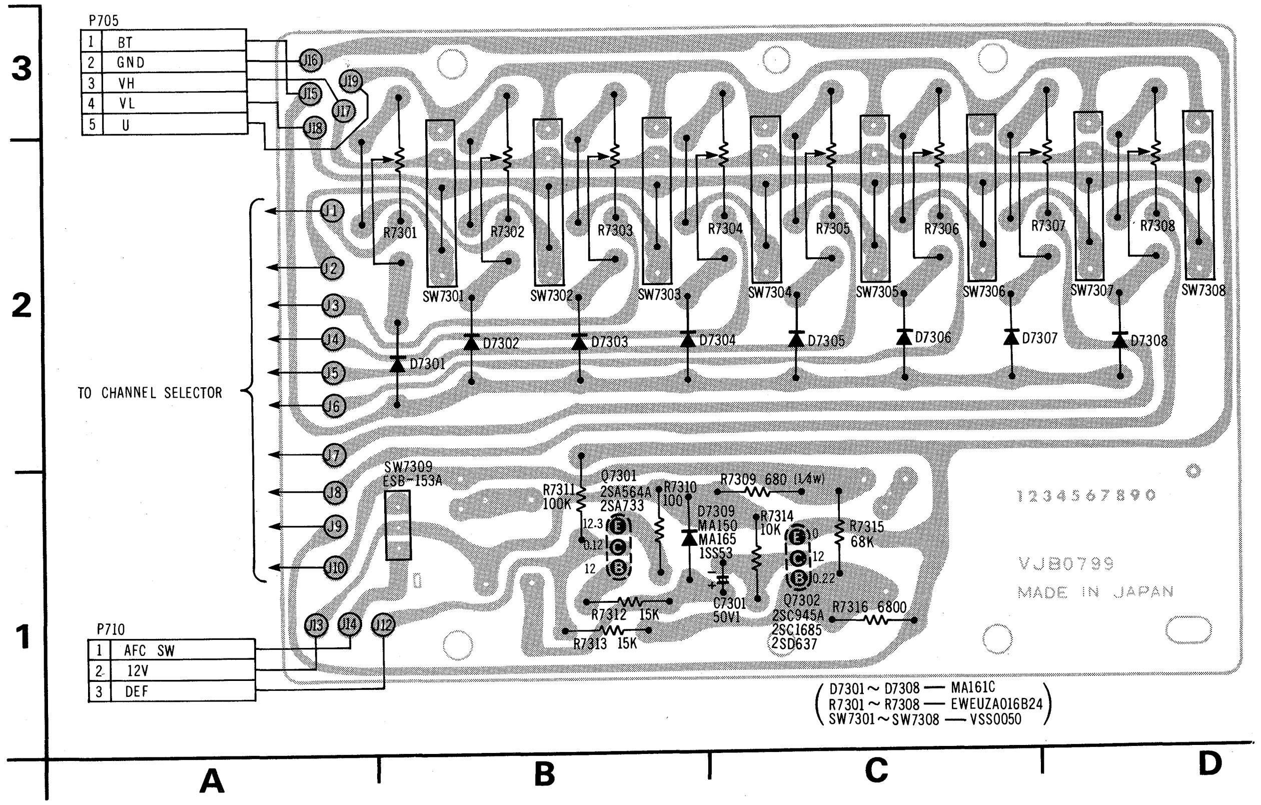

2
1
A
B
C
D
E
P6202
REW S6204
STOP S6205
FF S6206
PLAY S6202
REC S6203
PAUSE S6201
SEARCH S6207
P6201
D6203 MA165
D6204 MA165
R6224 22K
R6209 22K
R6206 22K
Q6209 2SB641
Q6202 2SB641
R6205 22K
R6204 22K
R6208 22K
R6207 22K
R6203 22K
R6202 22K
Q6201 2SB641
R6201 22K
D6201 MA165
D6202 MA165
D6207 LN21RCPHL
R6221 560
D6208 LN21RCPHL
R6218 560
R6220 39K
Q6203 2SD636
Q6204 2SD636
Q6205 2SD636
R6215 220
R6222 560
R6210 22K
D6209 LN21RCPHL
R6219 22K
R6217 22K
R6223 22K
Q6208 2SD636
Q6206 2SB641
R6216 22K
Q6207 2SD636
D6205 MA165
R6214 120
R6211 470K
C6201 0.01
R6213 1K
R6212 18K
D6206 LN41YCPHL
VJB00652
P6202
1 SEARCH Ⓛ
2 DEW SENSOR
3 STOP Ⓛ
P6201
1 GND
2 +5V
3 REC Ⓗ
4 PAUSE Ⓗ
5 B1
6 B2
7 B3
8 B0
9 FWD Ⓛ
10 C0
11 C1
12 DEW Ⓗ

CHANNEL SELECTOR BOARD (VEP0798A)


TO CHANNEL POTENTIOMETER
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
SW7201
SW7202
SW7203
SW7204
SW7205
SW7206
SW7207
SW7208
D7201
D7202
D7203
D7204
D7205
D7206
D7207
D7208
D7209 MA161 MA161C
D7210 MA161 MA161C
D7211 MA161 MA161C
D7212 MA161 MA161C
D7213 MA161 MA161C
D7214 MA161 MA161C
D7215 MA161 MA161C
D7216 MA161 MA161C
VJB0798
1234567890 MADE IN JAPAN
2
1
A
B
C

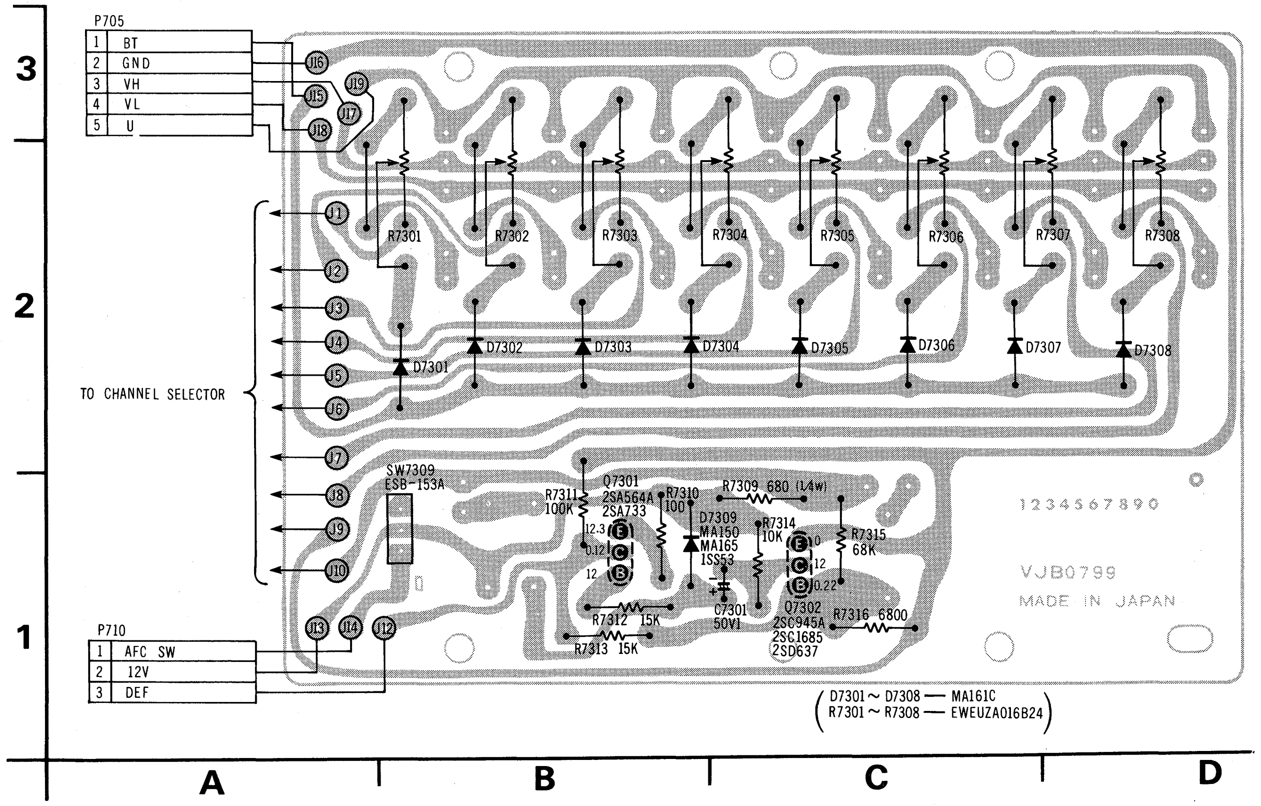
(SW7201～SW7208 — ESB63801
D7201～D7208 — LN31GCPU-H)

CHANNEL PRESET BOARD (VEP0799A)


P705
1 BT
2 GND
3 VH
4 VL
5 U
J16
J15
J19
J17
J18
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J13
J14
J12
TO CHANNEL SELECTOR
R7301
R7302
R7303
R7304
R7305
R7306
R7307
R7308
SW7301
SW7302
SW7303
SW7304
SW7305
SW7306
SW7307
SW7308
D7301
D7302
D7303
D7304
D7305
D7306
D7307
D7308
SW7309
ESB-153A
Q7301
2SA564A
2SA733
R7311
100K
R7310
100
R7309 680 (1/4W)
D7309
MA150
MA165
1SS53
R7314
10K
R7315
68K
C7301
50V1
Q7302
2SC945A
2SC1685
2SD637
R7316 6800
R7312 15K
R7313 15K
12.3
0.12
12
0.22
1234567890
VJB0799
MADE IN JAPAN
P710
1 AFC SW
2 12V
3 DEF
3
2
1
A
B
C
D

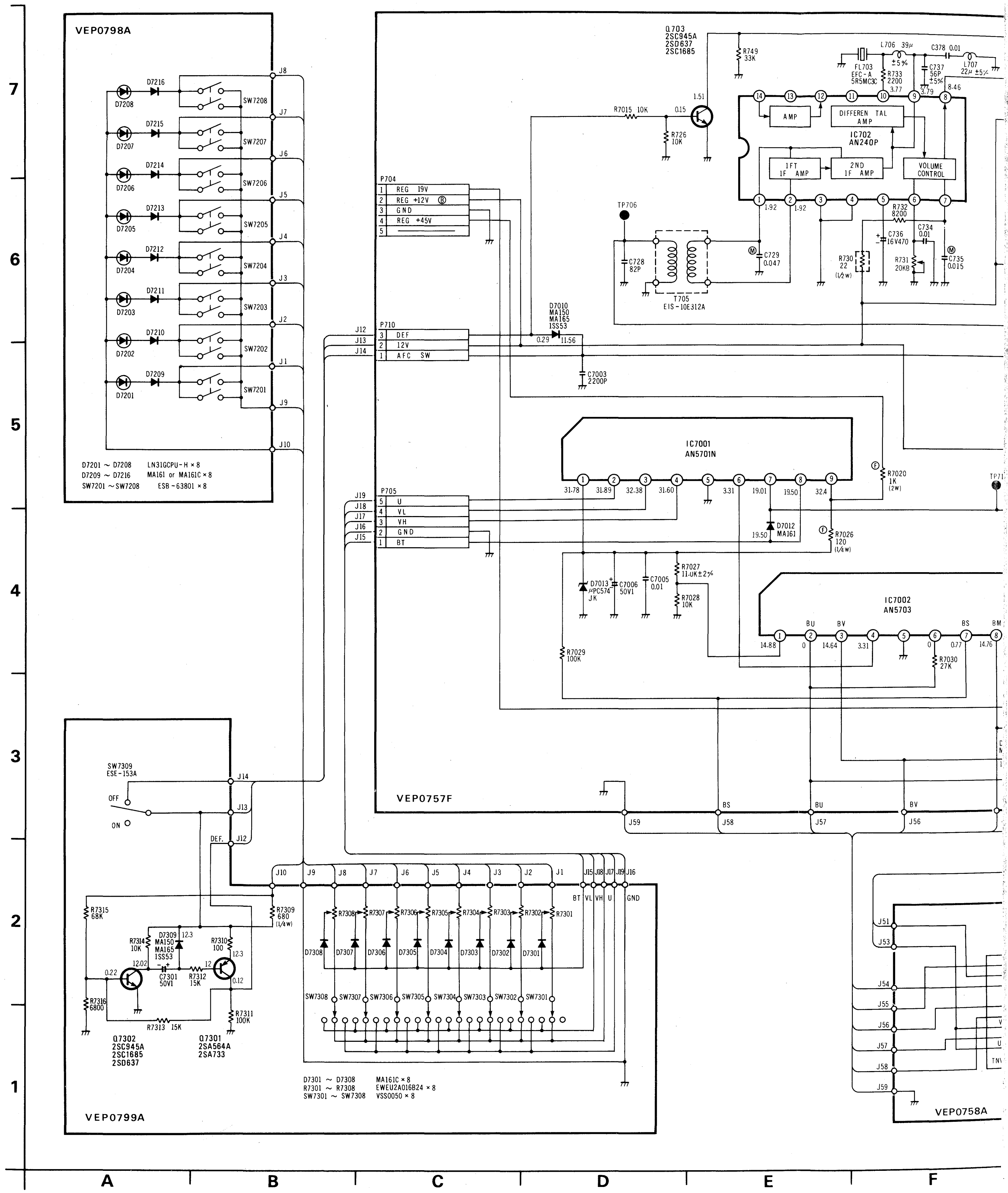
(D7301 ~ D7308 — MA161C
R7301 ~ R7308 — EWEUZA016B24
SW7301 ~ SW7308 — VSS0050)

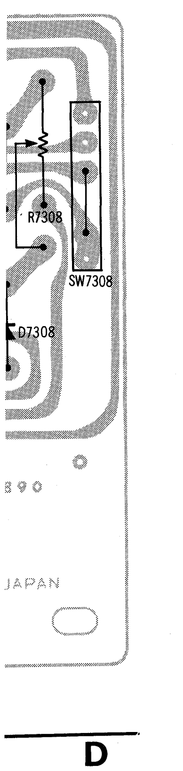
CHANNEL PRESET BOARD (VEP0799B)

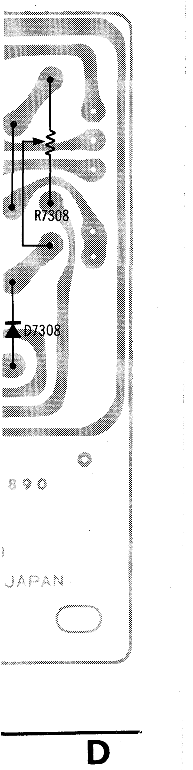

P705
1 BT
2 GND
3 VH
4 VL
5 U
J16
J15
J19
J17
J18
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
J13
J14
J12
TO CHANNEL SELECTOR
R7301
R7302
R7303
R7304
R7305
R7306
R7307
R7308
D7301
D7302
D7303
D7304
D7305
D7306
D7307
D7308
SW7309
ESB-153A
Q7301
2SA564A
2SA733
R7311
100K
R7310
100
R7309 680 (1/4W)
D7309
MA150
MA165
1SS53
R7314
10K
R7315
68K
C7301
50V1
Q7302
2SC945A
2SC1685
2SD637
R7316 6800
R7312 15K
R7313 15K
1234567890
VJB0799
MADE IN JAPAN
P710
1 AFC SW
2 12V
3 DEF
3
2
1
A
B
C
D

(D7301 ~ D7308 — MA161C
R7301 ~ R7308 — EWEUZA016B24)

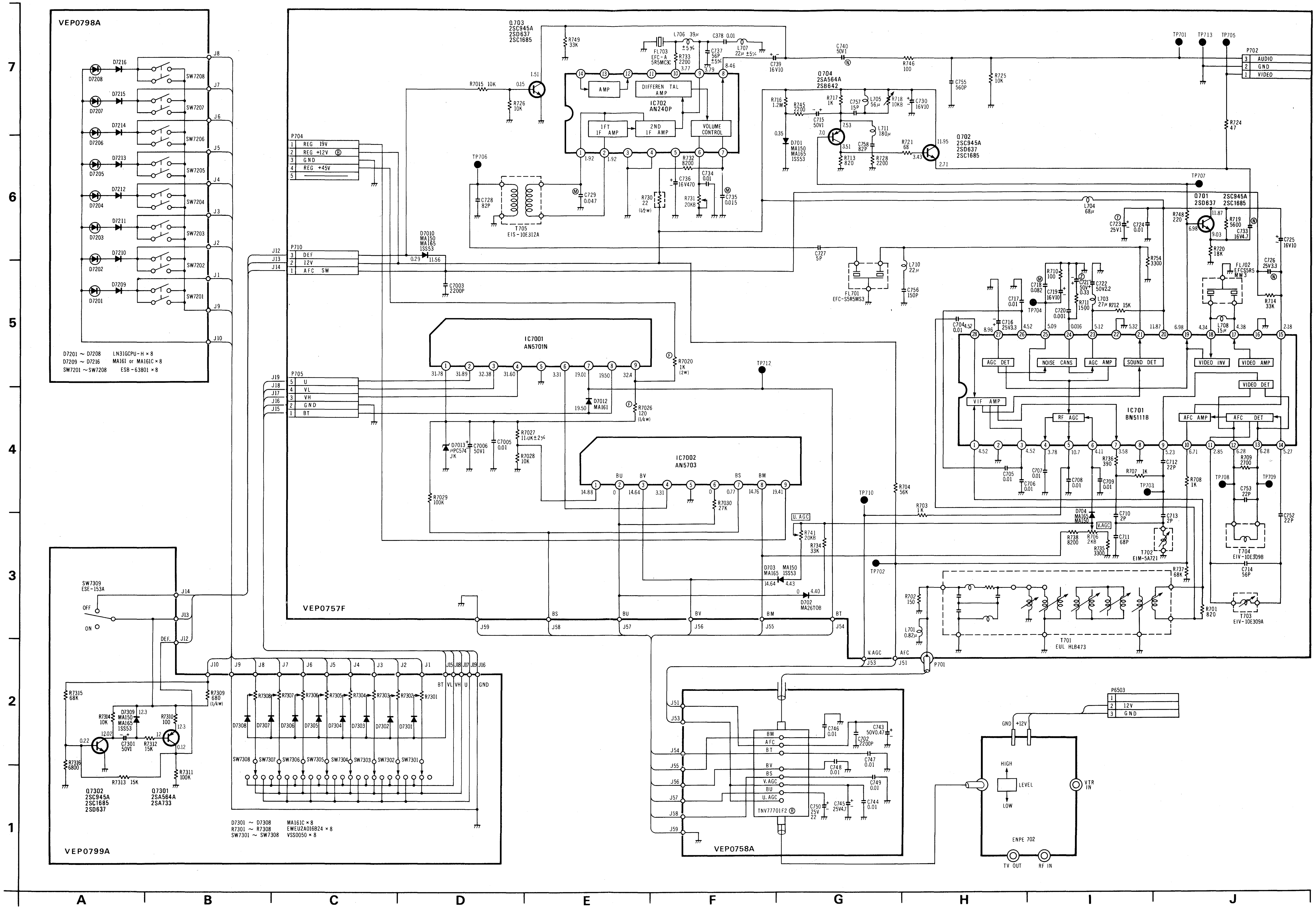
NV-2000-E/EG/EV TV DEMODULATOR SCHEMATIC DIAGR


VEP0798A
D7201
D7202
D7203
D7204
D7205
D7206
D7207
D7208
D7209
D7210
D7211
D7212
D7213
D7214
D7215
D7216
SW7201
SW7202
SW7203
SW7204
SW7205
SW7206
SW7207
SW7208
J1
J2
J3
J4
J5
J6
J7
J8
J9
J10
D7201 ~ D7208 LN31GCPU-H × 8
D7209 ~ D7216 MA161 or MA161C × 8
SW7201 ~ SW7208 ESB-63801 × 8
VEP0757F
Q703
2SC945A
2SD637
2SC1685
R749
33K
R7015 10K
R726
10K
L706 39μ
FL703
EFC-A
5R5MC3C
R733
2200
C737
56P
C378 0.01
L707
22μ
IC702
AN240P
AMP
DIFFERENTIAL AMP
1FT IF AMP
2ND IF AMP
VOLUME CONTROL
P704
1 REG 19V
2 REG +12V
3 GND
4 REG +45V
TP706
C728
82P
T705
EIS-10E312A
C729
0.047
R730
22
(1/2W)
R732
8200
C736
16V470
R731
20KB
C734
0.01
C735
0.015
D7010
MA150
MA165
1SS53
P710
3 DEF
2 12V
1 AFC SW
J12
J13
J14
C7003
2200P
IC7001
AN5701N
31.78
31.89
32.38
31.60
3.31
19.01
19.50
32.4
R7020
1K
(2W)
P705
5 U
4 VL
3 VH
2 GND
1 BT
J19
J18
J17
J16
J15
D7012
MA161
R7026
120
(1/4W)
D7013
HPC574
JK
C7006
50V1
C7005
0.01
R7027
11.0K±2%
R7028
10K
R7029
100K
IC7002
AN5703
BU
BV
BS
BM
14.88
14.64
3.31
0.77
14.76
R7030
27K
J59
J58
J57
J56
BS
BU
BV
SW7309
ESE-153A
OFF
ON
DEF.
R7315
68K
R7314
10K
D7309
MA150
MA165
1SS53
C7301
50V1
R7312
15K
R7310
100
R7309
680
(1/4W)
R7311
100K
R7316
6800
R7313 15K
Q7302
2SC945A
2SC1685
2SD637
Q7301
2SA564A
2SA733
12.3
12.02
12
0.22
0.12
BT VL VH U GND
R7301
R7302
R7303
R7304
R7305
R7306
R7307
R7308
D7301
D7302
D7303
D7304
D7305
D7306
D7307
D7308
SW7301
SW7302
SW7303
SW7304
SW7305
SW7306
SW7307
SW7308
D7301 ~ D7308 MA161C × 8
R7301 ~ R7308 EWEUZA016B24 × 8
SW7301 ~ SW7308 VSS0050 × 8
VEP0799A
J51
J53
J54
J55
J56
J57
J58
J59
VEP0758A
TP71
7
6
5
4
3
2
1
A
B
C
D
E
F

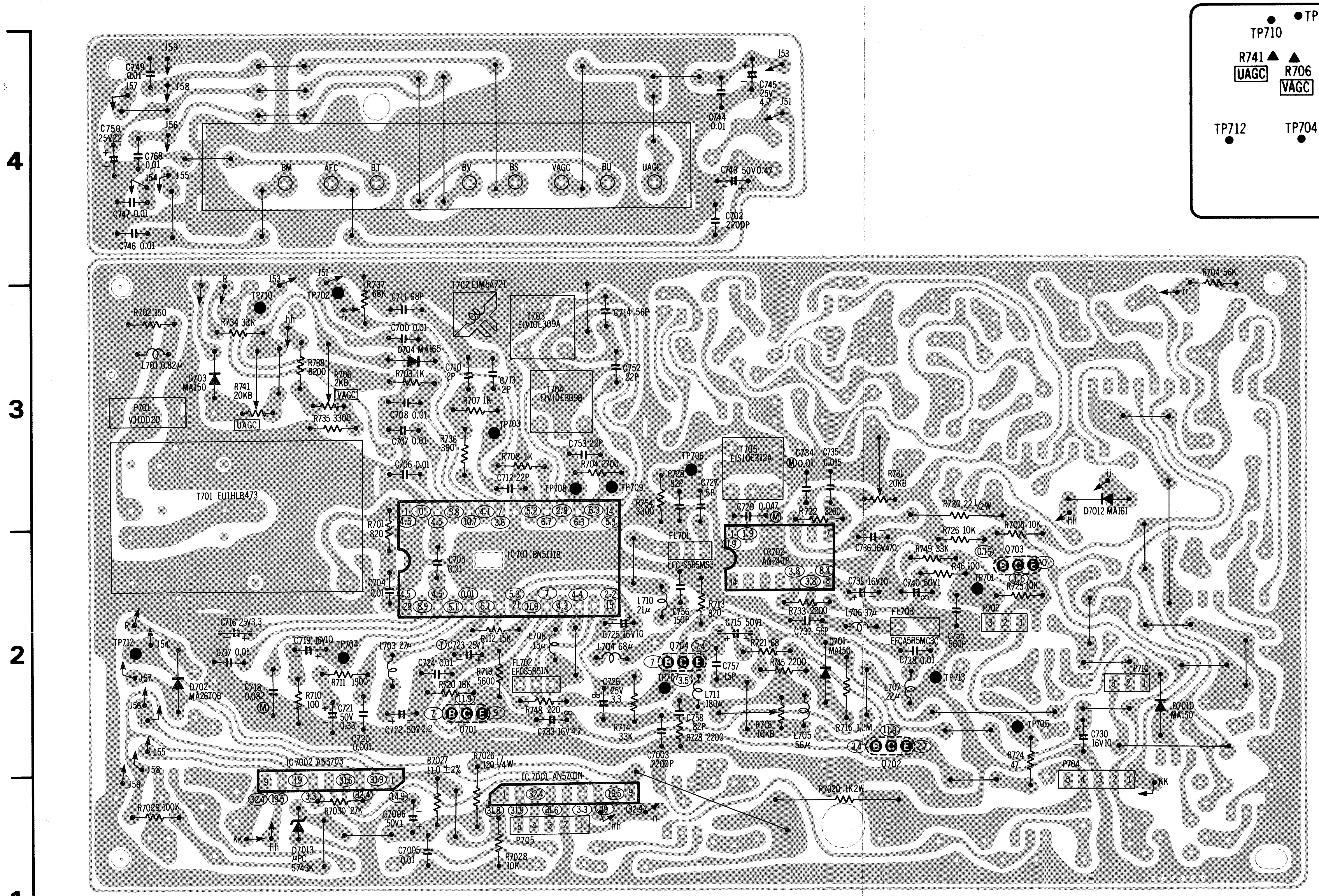

R7308
SW7308
D7308
JAPAN
D

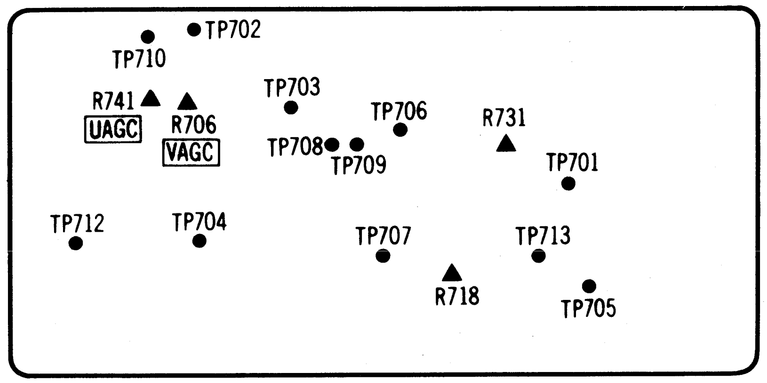

R7308
D7308
JAPAN
D

NV-2000-E/EG/EV TV DEMODULATOR SCHEMATIC DIAGRAM

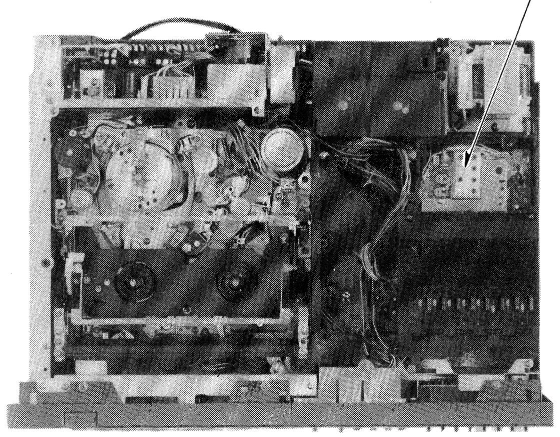

VEP0798A
D7216
D7208
SW7208
D7215
D7207
SW7207
D7214
D7206
SW7206
D7213
D7205
SW7205
D7212
D7204
SW7204
D7211
D7203
SW7203
D7210
D7202
SW7202
D7209
D7201
SW7201
J8
J7
J6
J5
J4
J3
J2
J1
J9
J10
D7201 ~ D7208 LN31GCPU-H × 8
D7209 ~ D7216 MA161 or MA161C × 8
SW7201 ~ SW7208 ESB-63801 × 8
P704
REG 19V
REG +12V
GND
REG +45V
P710
DEF
12V
AFC SW
J12
J13
J14
D7010
MA150
MA165
1SS53
C7003
2200P
P705
U
VL
VH
GND
BT
J19
J18
J17
J16
J15
IC7001
AN5701N
R7020
1K
(2W)
D7012
MA161
R7026
120
(1/4W)
D7013
μPC574
JK
C7006
50V1
C7005
0.01
R7027
11.0K±2%
R7028
10K
R7029
100K
IC7002
AN5703
BU
BV
BS
BM
R7030
27K
Q703
2SC945A
2SD637
2SC1685
R749
33K
R7015 10K
R726
10K
L706 39μ
FL703
EFC-A
5R5MC3C
R733
2200
C737
56P
C378 0.01
L707
22μ ±5%
C739
16V10
C740
50V1
R746
100
AMP
DIFFEREN TAL AMP
IC702
AN240P
1FT IF AMP
2ND IF AMP
VOLUME CONTROL
TP706
C728
82P
T705
EIS-10E312A
C729
0.047
R730
22
(1/2W)
C736
16V470
R732
8200
R731
20KB
C734
0.01
C735
0.015
Q704
2SA564A
2SB642
R716
1.2M
R745
2200
R717
1K
C757
15P
L705
56μ
R718
10KB
C730
16V10
C715
50V1
D701
MA150
MA165
1SS53
L711
180μ
C758
82P
R713
820
R728
2200
R721
68
Q702
2SC945A
2SD637
2SC1685
C755
560P
R725
10K
TP701
TP713
TP705
P702
AUDIO
GND
VIDEO
R724
47
TP707
Q701
2SD637
2SC945A
2SC1685
R748
220
R719
5600
C733
16V4.7
R720
18K
C725
16V10
L704
68μ
C723
25V1
C724
0.01
R754
3300
C727
5P
FL701
EFC-S5R5MS3
L710
22μ
C756
150P
C726
25V3.3
FL702
EFCS5R5
MW3
R714
33K
C717
0.01
TP704
C718
0.082
C719
16V10
R710
100
C721
50V
0.33
C722
50V2.2
C720
0.001
R711
1500
L703
27μ
R712 15K
C704
0.01
C716
25V3.3
L708
15μ
AGC DET
NOISE CANS
AGC AMP
SOUND DET
VIDEO INV
VIDEO AMP
VIDEO DET
VIF AMP
RF AGC
IC701
BN5111B
AFC AMP
AFC DET
TP712
TP710
R704
56K
C705
0.01
C706
0.01
C707
0.01
C708
0.01
C709
0.01
R736
390
R707 1K
C712
22P
R709
2700
TP708
TP709
TP703
R708
1K
C753
22P
C752
22P
R703
1K
U.AGC
R741
20KB
R734
33K
D704
MA165
MA150
V.AGC
R738
8200
R706
2KB
R735
3300
C710
2P
C711
68P
C713
2P
T702
EIM-5A721
T704
EIV-10E3098
C714
56P
D703 MA150
MA165 1SS53
D702
MA26T08
TP702
R702
150
L701
0.82μ
R737
68K
T701
EUL HLB473
R701
820
T703
EIV-10E309A
VEP0757F
J59
J58
J57
J56
J55
J54
J53
J51
V.AGC
AFC
P701
SW7309
ESE-153A
OFF
ON
J14
J13
DEF.
J12
R7315
68K
R7314
10K
D7309
MA150
MA165
1SS53
R7310
100
C7301
50V1
R7312
15K
R7316
6800
R7313 15K
R7311
100K
R7309
680
(1/4W)
Q7302
2SC945A
2SC1685
2SD637
Q7301
2SA564A
2SA733
VEP0799A
J10
J9
J8
J7
J6
J5
J4
J3
J2
J1
J15
J18
J17
J19
J16
BT
VL
VH
U
GND
R7308
R7307
R7306
R7305
R7304
R7303
R7302
R7301
D7308
D7307
D7306
D7305
D7304
D7303
D7302
D7301
SW7308
SW7307
SW7306
SW7305
SW7304
SW7303
SW7302
SW7301
D7301 ~ D7308 MA161C × 8
R7301 ~ R7308 EWEU2A016B24 × 8
SW7301 ~ SW7308 VSS0050 × 8
J51
J53
J54
J55
J56
J57
J58
J59
BM
AFC
BT
BV
BS
V.AGC
BU
U.AGC
TNV77701F2
C746
0.01
C743
50V0.47
C702
2200P
C747
0.01
C748
0.01
C749
0.01
C750
25V
22
C745
25V47
C744
0.01
VEP0758A
P6503
12V
GND
GND
+12V
HIGH
LEVEL
LOW
VTR IN
ENPE 702
TV OUT
RF IN
7
6
5
4
3
2
1
A
B
C
D
E
F
G
H
I
J

NV-2000-E/EG/EV TV DEMODULATOR & TUNER CONNECTION BOARD (VEP0757F/VEP0758A)


4
3
2
1
A
B
C
D
E
J59
C749 0.01
J57
J58
C750 25V22
J56
C768 0.01
J54
J55
C747 0.01
C746 0.01
BM
AFC
BT
BV
BS
VAGC
BU
UAGC
J53
C745 25V 4.7
J51
C744 0.01
C743 50V0.47
C702 2200P
R702 150
R734 33K
TP710
J53
J51
TP702
R737 68K
rr
C711 68P
T702 EIM5A721
T703 EIV10E309A
C714 56P
L701 0.82μ
D703 MA150
R741 20KB
UAGC
R738 8200
R706 2KB
VAGC
R735 3300
C700 0.01
D704 MA165
R703 1K
C710 2P
C713 2P
C708 0.01
C707 0.01
R707 1K
TP703
T704 EIV10E309B
C752 22P
P701 VJJ0020
T701 EU1HLB473
R736 390
C706 0.01
R708 1K
C712 22P
C753 22P
R704 2700
TP708
TP709
TP706
C728 82P
C727 5P
R754 3300
R701 820
C704 0.01
C705 0.01
IC701 BN5111B
T705 EIS10E312A
C734 0.01
C735 0.015
C729 0.047
R732 8200
FL701 EFC-S5R5MS3
IC702 AN240P
R731 20KB
R730 22 1/2W
D7012 MA161
R704 56K
R726 10K
R7015 10K
C736 16V470
R749 33K
R46 100
Q703
TP701
R725 10K
C735 16V10
C740 50V1
R733 2200
L706 37μ
C737 56P
FL703 EFCA5R5MC3C
C755 560P
C738 0.01
P702
TP712
J54
C716 25V3.3
C717 0.01
C719 16V10
TP704
L703 27μ
C723 25V1
R112 15K
L708 15μ
L710 21μ
C756 150P
R713 820
C715 50V1
C725 16V10
L704 68μ
Q704
R721 68
R745 2200
D701 MA150
TP713
P710
J57
D702 MA26TOB
C718 0.082
R710 100
R711 1500
C724 0.01
R719 5600
R720 18K
FL702 EFCS5R51N
C726 25V 3.3
TP707
C757 15P
L711 180μ
L707 22μ
D7010 MA150
J56
C721 50V 0.33
C720 0.001
C722 50V2.2
Q701
R748 220
C733 16V 4.7
R714 33K
C758 82P
R728 2200
R718 10KB
L705 56μ
R716 1.2M
Q702
TP705
C730 16V10
R724 47
C7003 2200P
J55
J58
J59
IC7002 AN5703
R7027 11.0 ±2%
R7026 120 1/4W
IC7001 AN5701N
R7020 1K2W
P704
KK
R7029 100K
R7030 27K
C7006 50V1
P705
hh
ii
D7013 μPC 5743K
C7005 0.01
R7028 10K


TP710
TP702
R741
UAGC
R706
VAGC
TP703
TP706
R731
TP708
TP709
TP701
TP712
TP704
TP707
TP713
R718
TP705

TV Demodulator Board



Q701, Q702 Q703
2SA945A 2SD637 2SA1684 2SD636

Q704
2SA733 2SA564A 2SB642

P105

1	BT
2	GND
3	VH
4	VL
5	U

P704

1	REG+19V Ⓕ
2	REG+12V Ⓑ
3	GND
4	UNREG+45V
5	

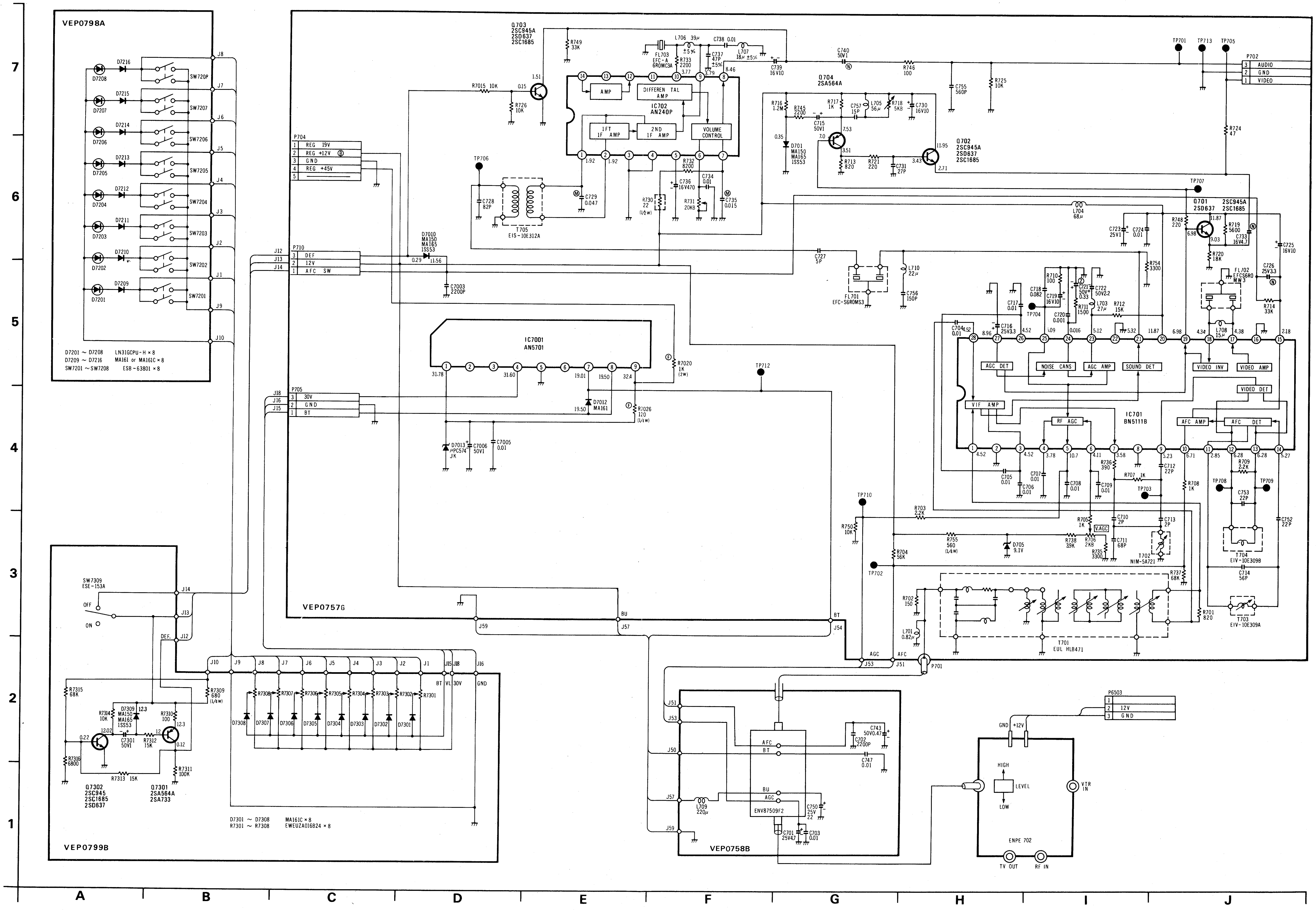
P702

1	VIDEO
2	GND
3	AUDIO

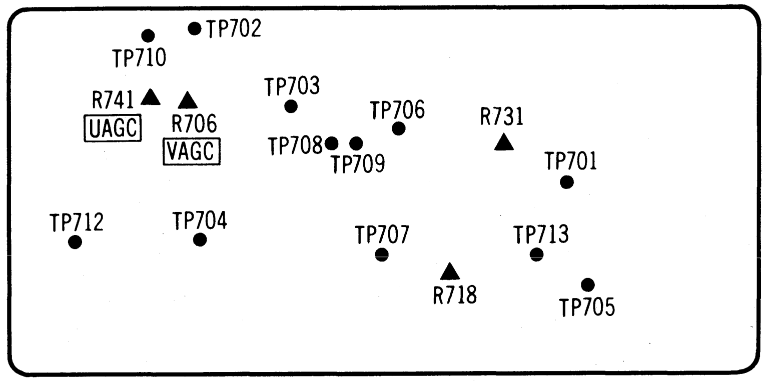
P710

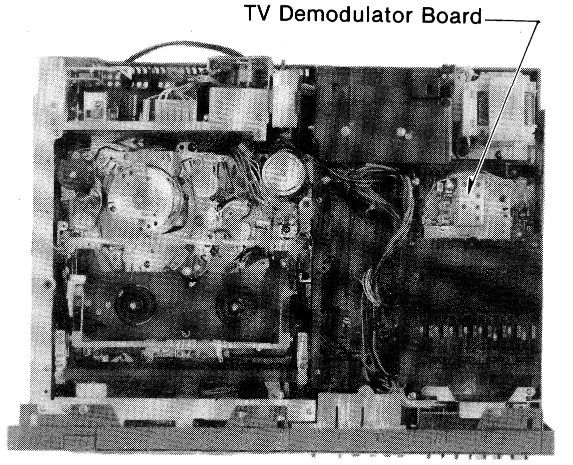
1	AFC SW
2	12V
3	DEF

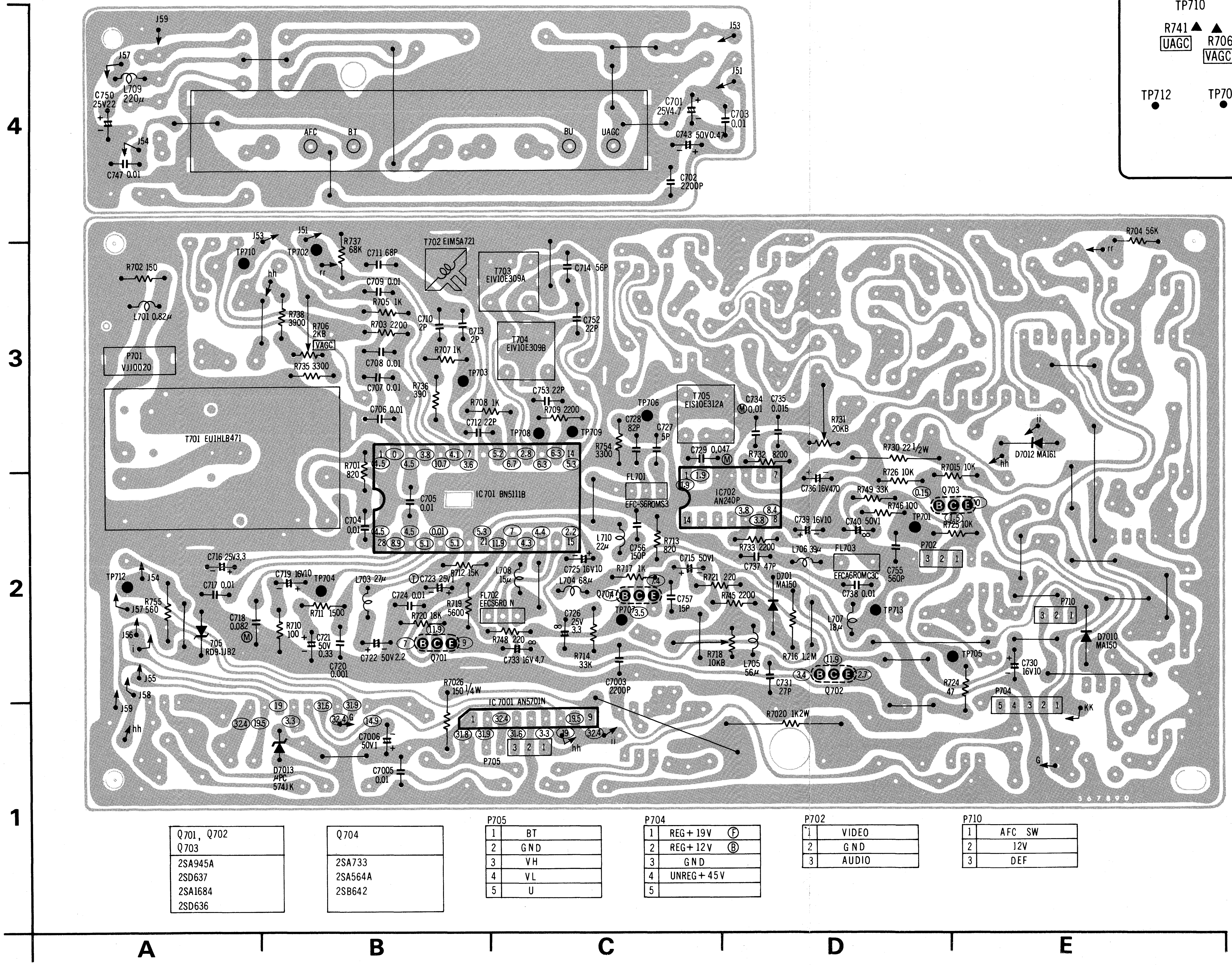
NV-2000-B TV DEMODULATOR SCHEMATIC DIAGRAM


VEP0798A
D7201 ~ D7208 LN31GCPU-H × 8
D7209 ~ D7216 MA161 or MA161C × 8
SW7201 ~ SW7208 ESB-63801 × 8
SW7201
SW7202
SW7203
SW7204
SW7205
SW7206
SW7207
SW7208
VEP0757G
Q703 2SC945A 2SD637 2SC1685
IC702 AN240P
AMP
DIFFEREN TAL AMP
1FT 1F AMP
2ND 1F AMP
VOLUME CONTROL
FL703 EFC-A 6R0MC3A
Q704 2SA564A
Q702 2SC945A 2SD637 2SC1685
Q701 2SC945A 2SD637 2SC1685
D701 MA150 MA165 1SS53
T705 EIS-10E312A
P704
REG 19V
REG +12V
GND
REG +45V
P710
DEF
12V
AFC SW
D7010 MA150 MA165 1SS53
IC7001 AN5701
P705
30V
GND
BT
D7012 MA161
D7013 μPC574 JK
TP701
TP713
TP705
P702
AUDIO
GND
VIDEO
TP706
TP707
TP712
TP704
TP710
TP702
TP703
TP708
TP709
FL701 EFC-S6R0MS3
FL702 EFC-S6R0MW3
IC701 BN5111B
AGC DET
NOISE CANS
AGC AMP
SOUND DET
VIDEO INV
VIDEO AMP
VIDEO DET
VIF AMP
RF AGC
AFC AMP
AFC DET
T702 NIM-5A721
T704 EIV-10E309B
T703 EIV-10E309A
T701 EUL HL8471
D705 9.1V
VEP0799B
SW7309 ESE-153A
OFF
ON
DEF.
Q7302 2SC945 2SC1685 2SD637
Q7301 2SA564A 2SA733
D7309 MA150 MA165 1SS53
D7301 ~ D7308 MA161C × 8
R7301 ~ R7308 EWEUZA016B24 × 8
GND
VEP0758B
AFC
BT
BU
AGC
ENV87509F2
P701
P6503
12V
GND
ENPE 702
HIGH
LEVEL
LOW
VTR IN
TV OUT
RF IN
1
2
3
4
5
6
7
A
B
C
D
E
F
G
H
I
J

NV-2000-B TV DEMODULATOR & TUNER CONNECTION BOARD (VEP0757G/VEP0758B)


TP710
TP702
R741
UAGC
R706
VAGC
TP703
TP706
R731
TP708
TP709
TP701
TP712
TP704
TP707
TP713
R718
TP705


TV Demodulator Board


4
3
2
1
A
B
C
D
E
J59
J53
J57
L709 220μ
C750 25V22
J51
C701 25V4.7
C703 0.01
AFC
BT
BU
UAGC
J54
C743 50V0.47
C747 0.01
C702 2200P
R737 68K
C711 68P
T702 EIM5A721
T703 EIV10E309A
C714 56P
R704 56K
R702 150
L701 0.82μ
TP710
TP702
C709 0.01
R705 1K
R738 3900
R706 2KB
VAGC
R703 2200
C710 2P
C713 2P
C752 22P
T704 EIV10E309B
P701 VJJ0020
R735 3300
C708 0.01
R707 1K
TP703
C707 0.01
R736 390
C753 22P
T705 EIS10E312A
C734 0.01
C735 0.015
R731 20KB
T701 EU1HLB471
C706 0.01
R708 1K
R709 2200
TP706
C728 82P
C727 5P
C712 22P
TP708
TP709
R754 3300
C729 0.047
R732 8200
R730 22 1/2W
D7012 MA161
R701 820
IC701 BN5111B
C705 0.01
FL701
EFC-S6R0MS3
IC702 AN240P
C736 16V470
R726 10K
R7015 10K
R749 33K
Q703
R746 100
TP701
R725 10K
C704 0.01
L710 22μ
C756 150P
R713 820
R733 2200
C739 16V10
C740 50V1
L706 39μ
FL703
EFCA6R0MC3C
C755 560P
P702
C716 25V3.3
TP712
J54
C717 0.01
C719 16V10
TP704
L703 27μ
C723 25V
R712 15K
L708 15μ
C725 16V10
L704 68μ
R717 1K
C715 50V1
R721 220
D701 MA150
C737 47P
C738 0.01
R755 560
J57
J56
C718 0.082
R710 100
R711 1500
C724 0.01
R719 5600
FL702 EFCS6R0N
Q704
C757 15P
R745 2200
TP713
P710
D7010 MA150
705 RD9.1JB2
C721 50V 0.33
R720 18K
C726 25V 3.3
TP707
L707 18μ
C722 50V2.2
Q701
R748 220
C733 16V 4.7
R714 33K
R718 10KB
L705 56μ
R716 1.2M
TP705
C730 16V10
C720 0.001
J55
J58
J59
R7026 150 1/4W
C7003 2200P
C731 27P
Q702
R724 47
P704
IC7001 AN5701N
R7020 1K2W
C7006 50V1
D7013 μPC 574JK
C7005 0.01
P705
567890

Q701, Q702 Q703
2SA945A 2SD637 2SA1684 2SD636

Q704
2SA733 2SA564A 2SB642

P705

1	BT
2	GND
3	VH
4	VL
5	U

P704

1	REG+19V Ⓕ
2	REG+12V Ⓑ
3	GND
4	UNREG+45V
5	

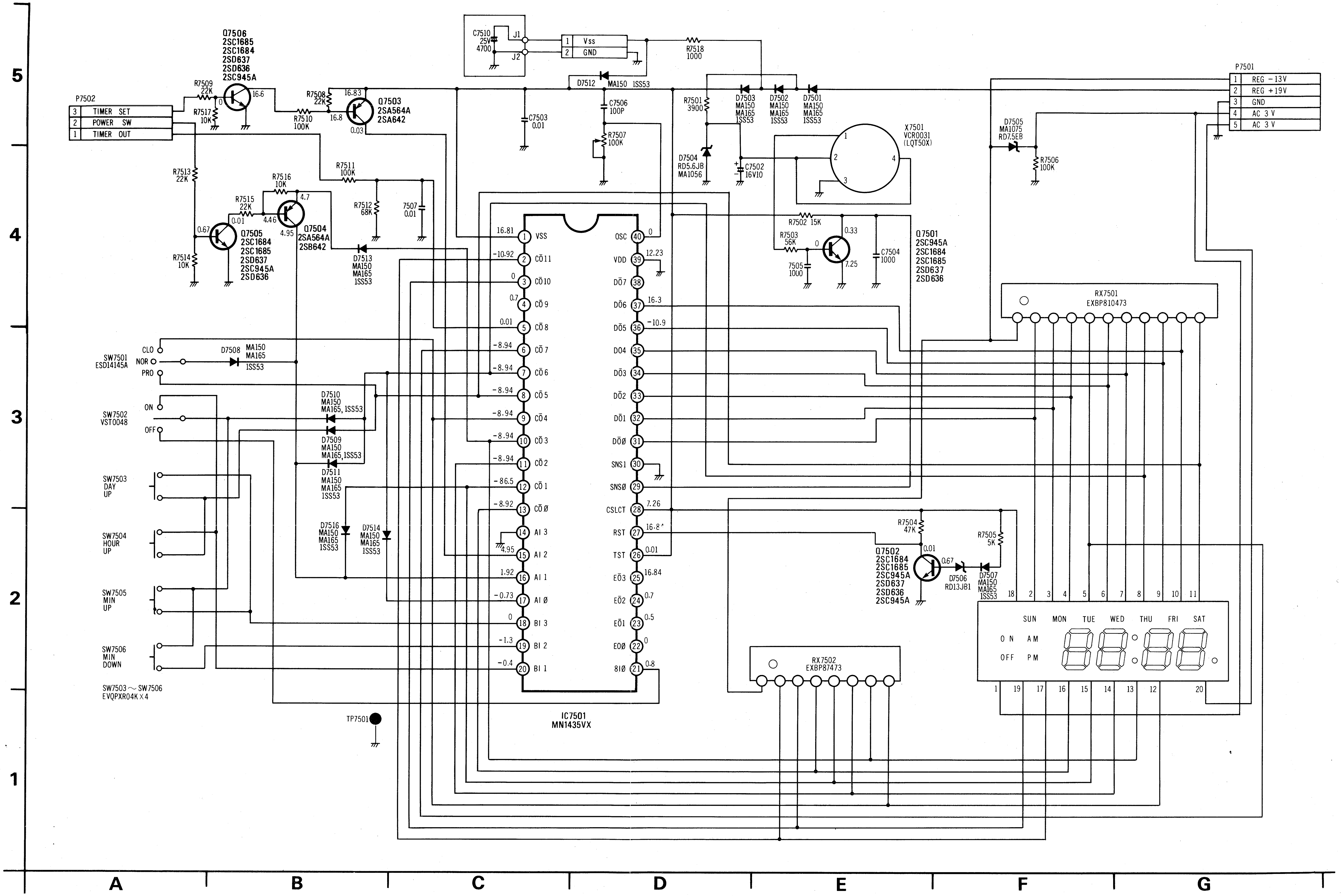
P702

1	VIDEO
2	GND
3	AUDIO

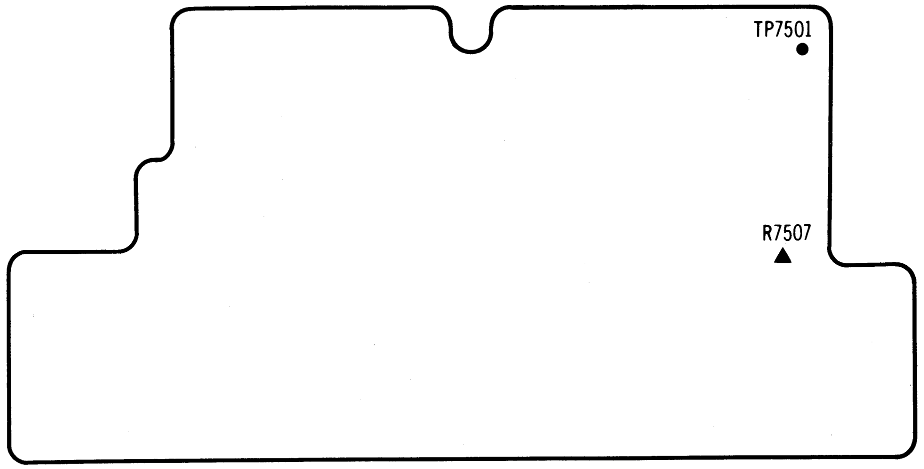
P710

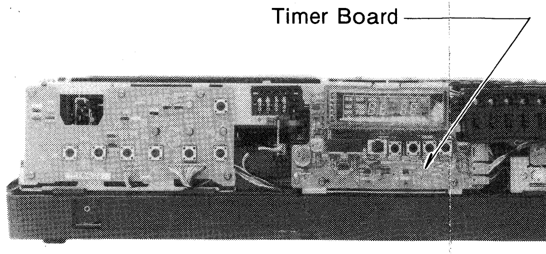
1	AFC SW
2	12V
3	DEF

TIMER SCHEMATIC DIAGRAM

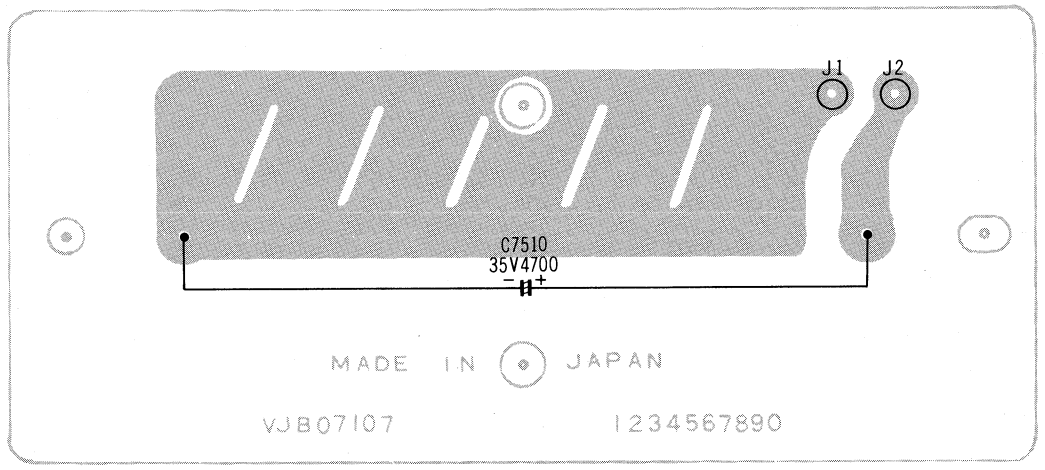


P7502
3 TIMER SET
2 POWER SW
1 TIMER OUT
Q7506
2SC1685
2SC1684
2SD637
2SD636
2SC945A
R7509 22K
R7517 10K
R7508 22K
R7510 100K
Q7503
2SA564A
2SA642
16.6
16.83
16.8
0.03
C7510 25V 4700
J1
J2
1 Vss
2 GND
R7518 1000
D7512 MA150 1SS53
C7506 100P
C7503 0.01
R7507 100K
R7501 3900
D7503 MA150 MA165 1SS53
D7502 MA150 MA165 1SS53
D7501 MA150 MA165 1SS53
D7504 RD5.6JB MA1056
C7502 16V10
X7501 VCR0031 (LQT50X)
P7501
1 REG −13V
2 REG +19V
3 GND
4 AC 3V
5 AC 3V
D7505 MA1075 RD7.5EB
R7506 100K
R7513 22K
R7511 100K
R7516 10K
R7515 22K
R7512 68K
7507 0.01
Q7505
2SC1684
2SC1685
2SD637
2SC945A
2SD636
Q7504
2SA564A
2SB642
R7514 10K
D7513 MA150 MA165 1SS53
R7502 15K
R7503 56K
7505 1000
C7504 1000
Q7501
2SC945A
2SC1684
2SC1685
2SD637
2SD636
RX7501 EXBP810473
SW7501 ESD14145A
CLO
NOR
PRO
D7508 MA150 MA165 1SS53
SW7502 VST0048
ON
OFF
D7510 MA150 MA165, 1SS53
D7509 MA150 MA165,1SS53
D7511 MA150 MA165 1SS53
D7516 MA150 MA165 1SS53
D7514 MA150 MA165 1SS53
SW7503 DAY UP
SW7504 HOUR UP
SW7505 MIN UP
SW7506 MIN DOWN
SW7503～SW7506 EVQPXR04K×4
TP7501
1 VSS 16.81
2 CO11 −10.92
3 CO10 0
4 CO9 0.7
5 CO8 0.01
6 CO7 −8.94
7 CO6 −8.94
8 CO5 −8.94
9 CO4 −8.94
10 CO3 −8.94
11 CO2 −8.94
12 CO1 −86.5
13 CO0 −8.92
14 AI3
15 AI2 4.95
16 AI1 1.92
17 AI0 −0.73
18 BI3 0
19 BI2 −1.3
20 BI1 −0.4
40 OSC 0
39 VDD 12.23
38 DO7
37 DO6 16.3
36 DO5 −10.9
35 DO4
34 DO3
33 DO2
32 DO1
31 DO0
30 SNS1
29 SNS0
28 CSLCT 7.26
27 RST 16.8
26 TST 0.01
25 EO3 16.84
24 EO2 0.7
23 EO1 0.5
22 EO0 0
21 BI0 0.8
IC7501 MN1435VX
RX7502 EXBP87473
R7504 47K
R7505 5K
Q7502
2SC1684
2SC1685
2SC945A
2SD637
2SD636
2SC945A
0.01
0.67
D7506 RD13JB1
D7507 MA150 MA165 1SS53
SUN MON TUE WED THU FRI SAT
ON AM
OFF PM
18 2 3 4 5 6 7 8 9 10 11
1 19 17 16 15 14 13 12 20
5
4
3
2
1
A B C D E F G

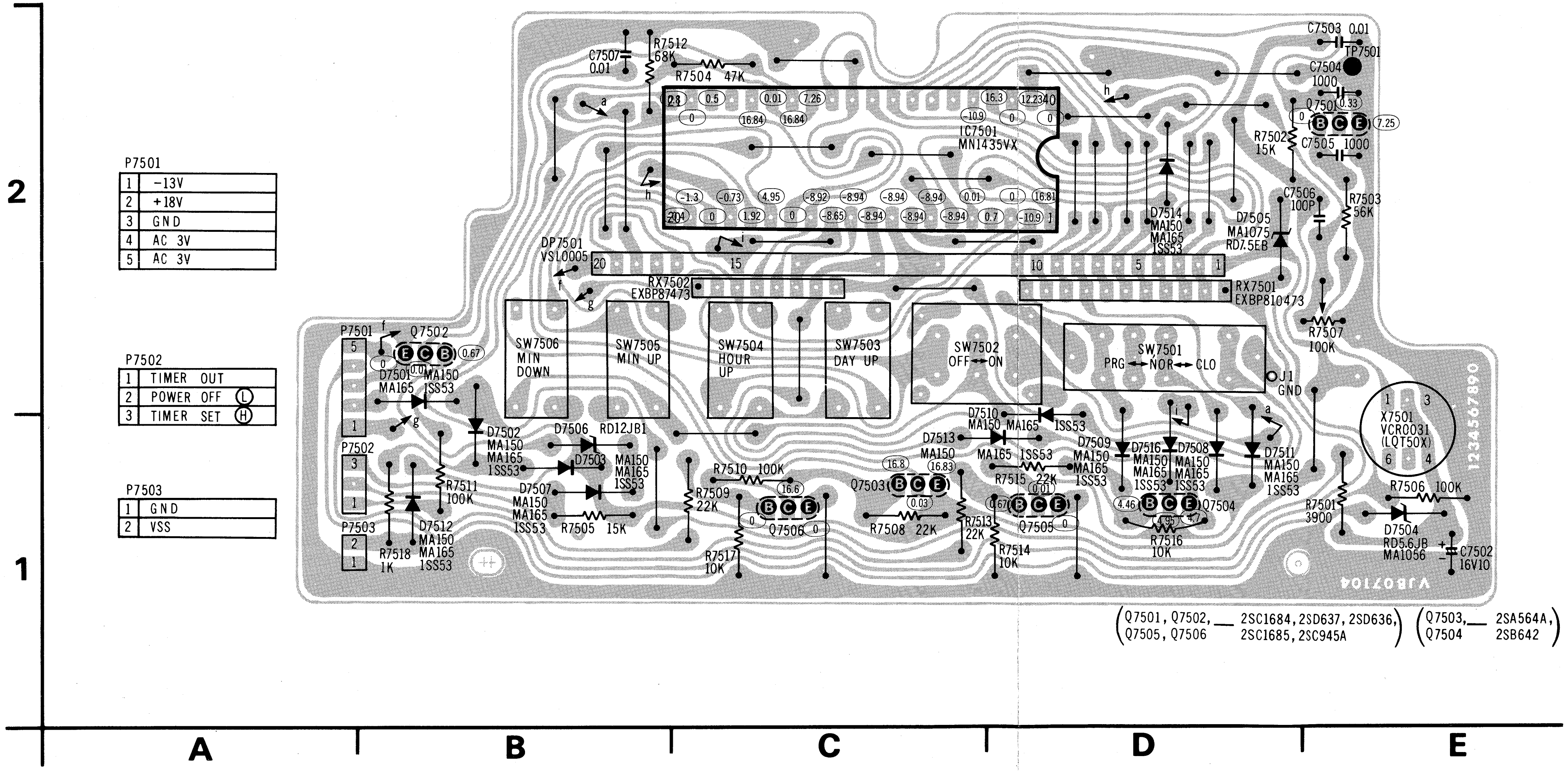

TP7501
R7507


Timer Board

TIMER BACKUP BOARD (VEP07107A)


J1
J2
C7510
35V4700
MADE IN JAPAN
VJB07107
1234567890

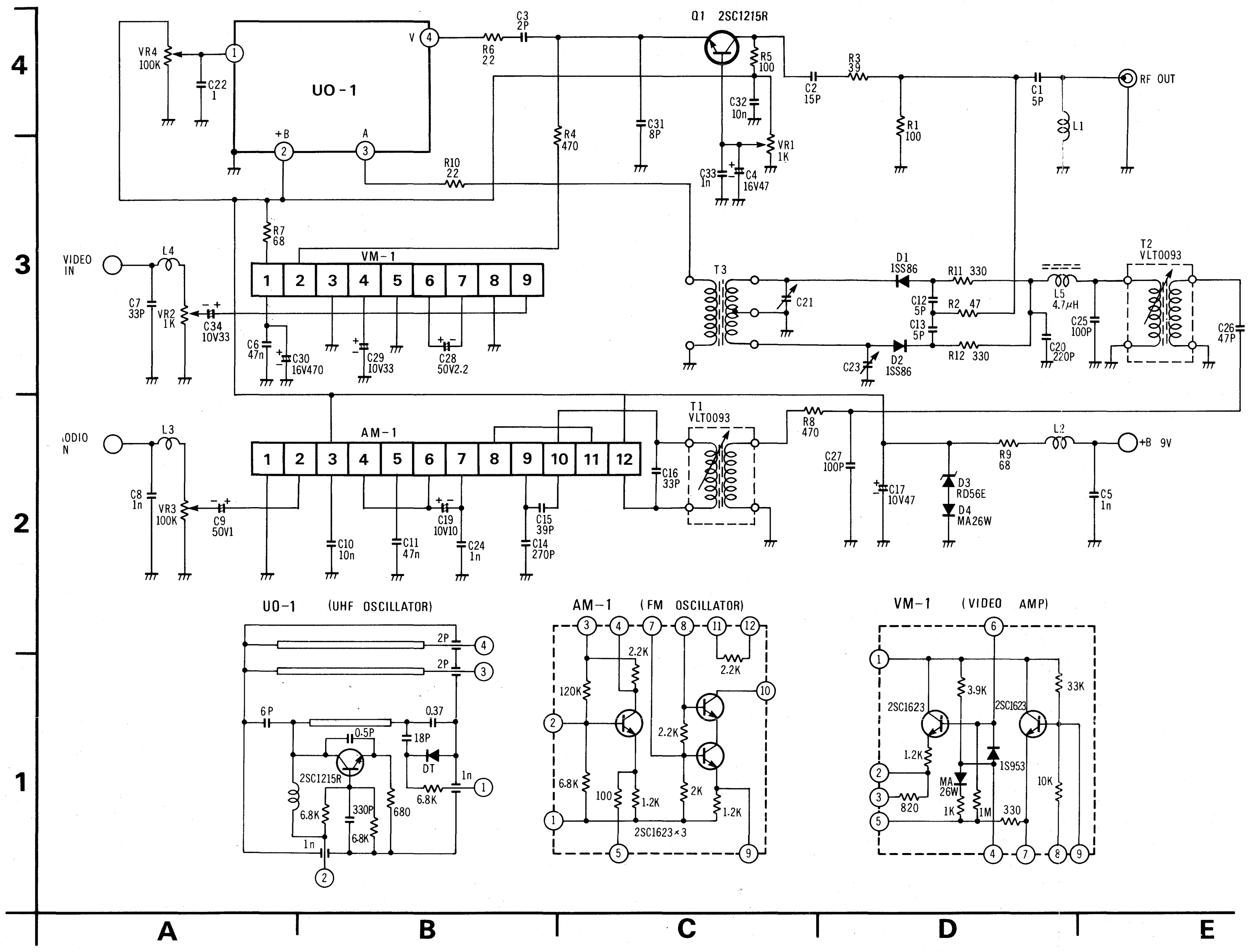
TIMER BOARD (VEP07104A)


2
1
A
B
C
D
E
P7501
1 -13V
2 +18V
3 GND
4 AC 3V
5 AC 3V
P7502
1 TIMER OUT
2 POWER OFF Ⓛ
3 TIMER SET Ⓗ
P7503
1 GND
2 VSS
IC7501
MN1435VX
DP7501
VSL0005
RX7502
EXBP87473
RX7501
EXBP810473
SW7506
MIN DOWN
SW7505
MIN UP
SW7504
HOUR UP
SW7503
DAY UP
SW7502
OFF ↔ ON
SW7501
PRG ↔ NOR ↔ CLO
J1
GND
X7501
VCR0031
(LQT50X)
TP7501
C7503 0.01
C7504 1000
C7505 1000
C7506 100P
C7507 0.01
C7502 16V10
R7501 3900
R7502 15K
R7503 56K
R7504 47K
R7505 15K
R7506 100K
R7507 100K
R7508 22K
R7509 22K
R7510 100K
R7511 100K
R7512 68K
R7513 22K
R7514 10K
R7515 22K
R7516 10K
R7517 10K
R7518 1K
D7501 MA150 MA165 1SS53
D7502 MA150 MA165 1SS53
D7503 MA150 MA165 1SS53
D7504 RD5.6JB MA1056
D7505 MA1075 RD7.5EB
D7506 RD12JB1
D7507 MA150 MA165 1SS53
D7508 MA150 MA165 1SS53
D7509 MA150 MA165 1SS53
D7510 MA150 MA165 1SS53
D7511 MA150 MA165 1SS53
D7512 MA150 MA165 1SS53
D7513 MA150 MA165 1SS53
D7514 MA150 MA165 1SS53
D7516 MA150 MA165 1SS53
Q7501
Q7502
Q7503
Q7504
Q7505
Q7506
VJB07104
1234567890

(Q7501, Q7502, Q7505, Q7506 — 2SC1684, 2SD637, 2SD636, 2SC1685, 2SC945A) (Q7503, Q7504 — 2SA564A, 2SB642)

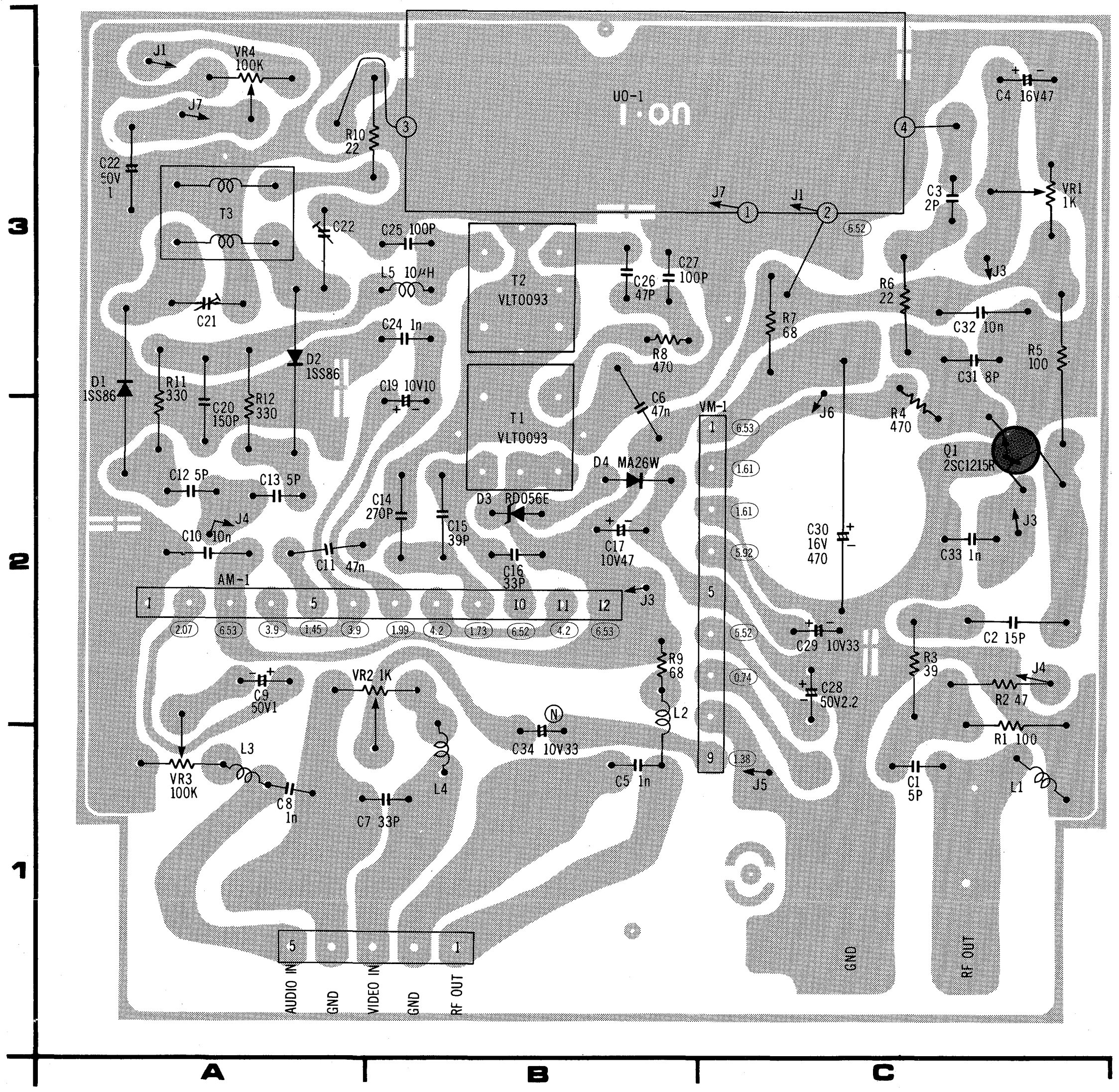
Timer C.B.A.	
Q7501	E-2
Q7502	B-2
Q7503	C-1
Q7504	D-1
Q7505	D-1
Q7506	C-1

RF CONVERTER SCHEMATIC DIAGRAM



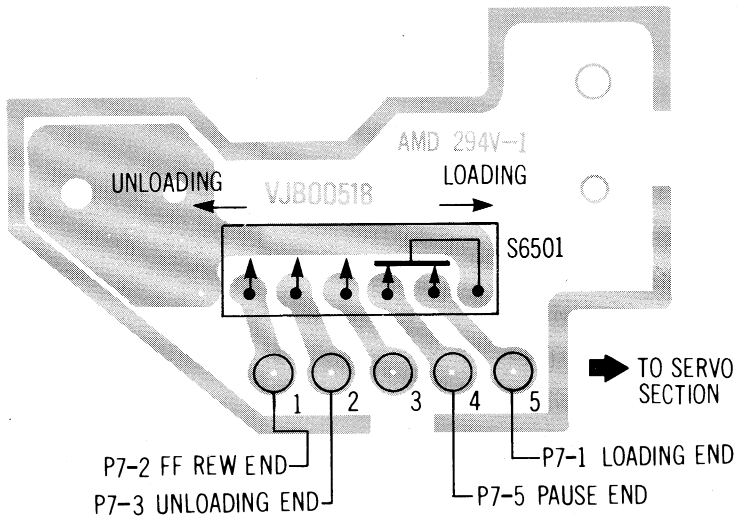
VR4 100K
C22 1
UO-1
V
+B
A
C3 2P
R6 22
Q1 2SC1215R
R5 100
C32 10n
VR1 1K
C33 1n
C4 16V47
C2 15P
R3 39
R1 100
C1 5P
L1
RF OUT
R4 470
C31 8P
R10 22
R7 68
VIDEO IN
L4
C7 33P
VR2 1K
C34 10V33
VM-1
C6 47n
C30 16V470
C29 10V33
C28 50V2.2
T3
C21
D1 1SS86
R11 330
C12 5P
R2 47
C13 5P
R12 330
D2 1SS86
C23
L5 4.7μH
C25 100P
C20 220P
T2 VLT0093
C26 47P
AUDIO IN
L3
C8 1n
VR3 100K
C9 50V1
AM-1
C10 10n
C11 47n
C19 10V10
C24 1n
C15 39P
C14 270P
C16 33P
T1 VLT0093
R8 470
C27 100P
C17 10V47
D3 RD56E
D4 MA26W
R9 68
L2
+B 9V
C5 1n
UO-1 (UHF OSCILLATOR)
2P
6P
0.37
0.5P
18P
DT
2SC1215R
6.8K
330P
680
1n
AM-1 (FM OSCILLATOR)
2.2K
120K
6.8K
100
1.2K
2K
2SC1623×3
VM-1 (VIDEO AMP)
3.9K
33K
2SC1623
1.2K
MA 26W
1S953
820
1K
1M
330
10K
1
2
3
4
A
B
C
D
E

RF CONVERTER BOARD (ENC17351/ENC17352/ ENC17353)

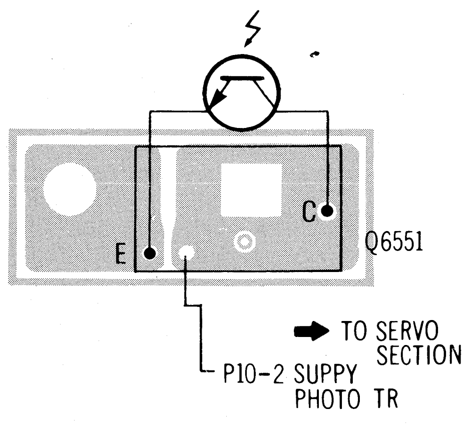


J1
VR4 100K
J7
R10 22
UO-1
C4 16V47
C22 50V 1
T3
C22
C25 100P
L5 10μH
C26 47P
C27 100P
J7
J1
C3 2P
VR1 1K
C21
T2 VLT0093
R6 22
R7 68
J3
C32 10n
R5 100
C31 8P
D1 1SS86
R11 330
C20 150P
R12 330
D2 1SS86
C24 1n
C19 10V10
R8 470
C6 47n
J6
R4 470
VM-1
T1 VLT0093
Q1 2SC1215R
C12 5P
C13 5P
J4
C14 270P
C15 39P
D3 RD56E
D4 MA26W
C30 16V 470
C10 10n
C11 47n
C16 33P
C17 10V47
J3
C33 1n
AM-1
C29 10V33
C28 50V2.2
R9 68
L2
R3 39
C2 15P
J4
R2 47
R1 100
C9 50V1
VR2 1K
C34 10V33
L3
VR3 100K
C8 1n
C7 33P
L4
C5 1n
J5
C1 5P
L1
AUDIO IN
GND
VIDEO IN
GND
RF OUT
GND
RF OUT
1
2
3
A
B
C

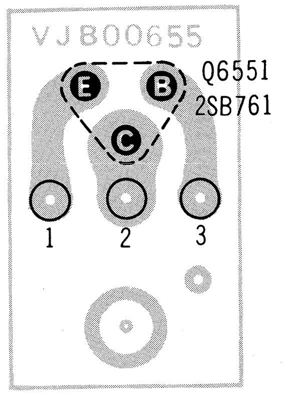
MODE SELECT SW BOARD (VJB00518)


AMD 294V-1
UNLOADING
VJB00518
LOADING
S6501
1
2
3
4
5
TO SERVO SECTION
P7-2 FF REW END
P7-3 UNLOADING END
P7-1 LOADING END
P7-5 PAUSE END

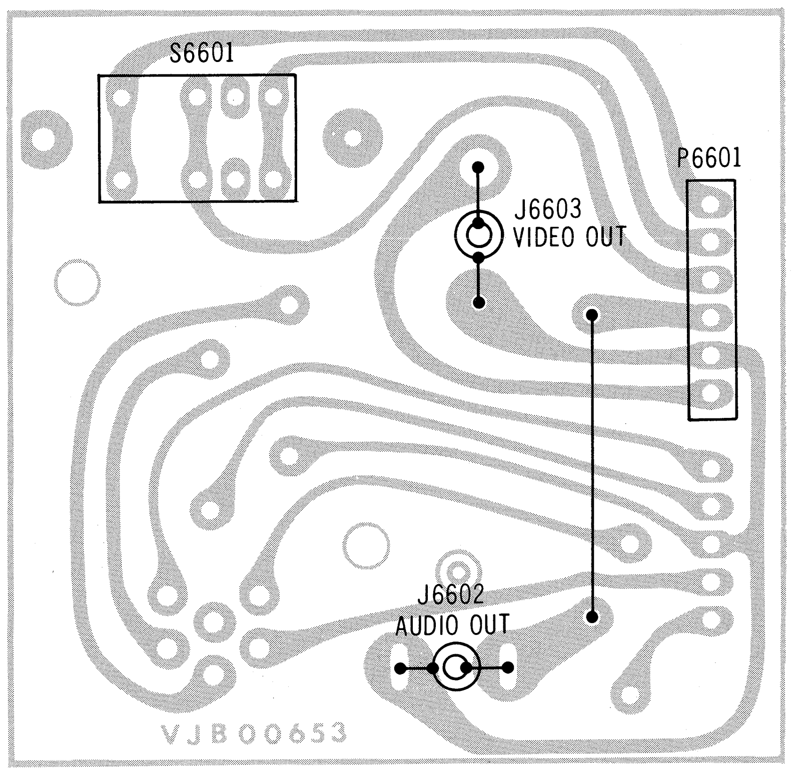
SUPPLY PHOTO TR BOARD (VJB00521)


C
E
Q6551
TO SERVO SECTION
P10-2 SUPPY PHOTO TR

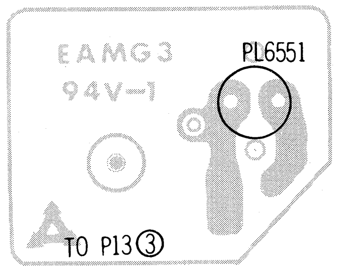
POWER TR BOARD (VJB00655)


VJB00655
Q6551
2SB761
E
B
C
1
2
3

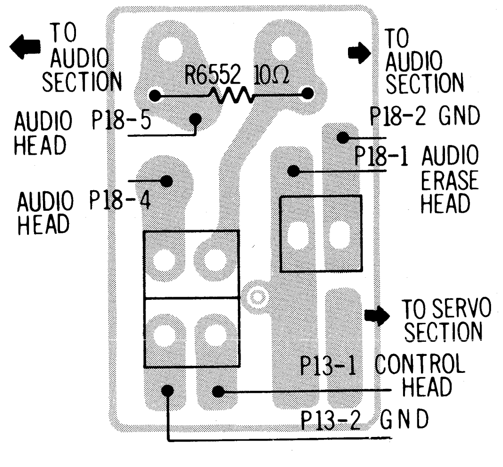
OUTPUT JACK BOARD (VJB00653)


S6601
P6601
J6603
VIDEO OUT
J6602
AUDIO OUT
VJB00653

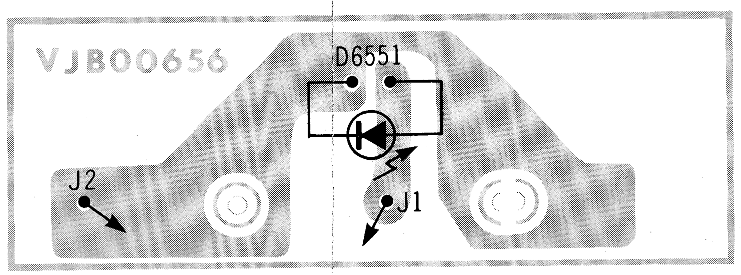
SENSOR LAMP BOARD (VJB00519)


EAMG3
94V-1
PL6551
TO P13③

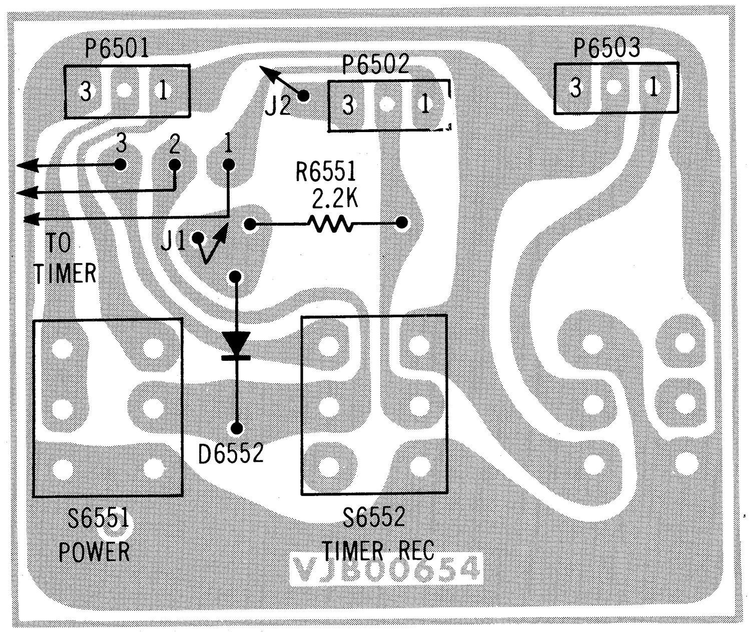
A/C HEAD BOARD (VJB00524)


TO AUDIO SECTION
TO AUDIO SECTION
R6552 10Ω
AUDIO HEAD P18-5
P18-2 GND
P18-1 AUDIO ERASE HEAD
AUDIO HEAD P18-4
TO SERVO SECTION
P13-1 CONTROL HEAD
P13-2 GND

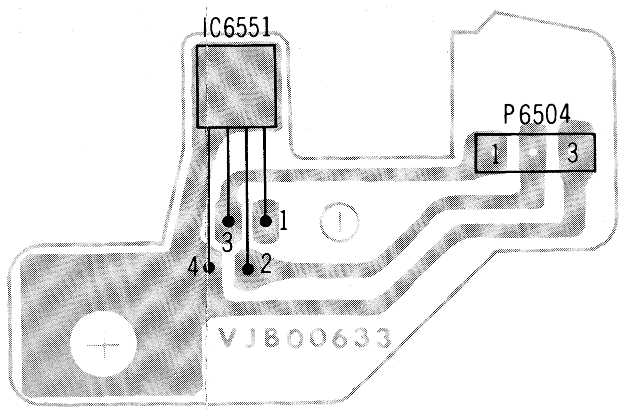
TIMER LED BOARD (VJB00656)


VJB00656
D6551
J2
J1

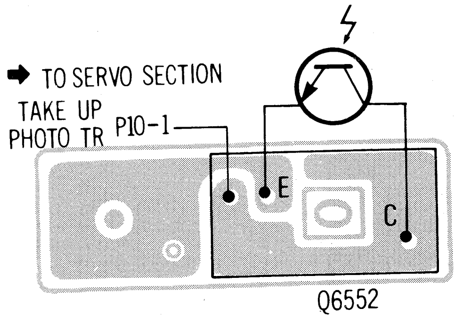
FRONT SW BOARD (VJB00654)


P6501
3
1
P6502
3
1
J2
P6503
3
1
3
2
1
R6551
2.2K
TO TIMER
J1
D6552
S6551
POWER
S6552
TIMER REC
VJB00654

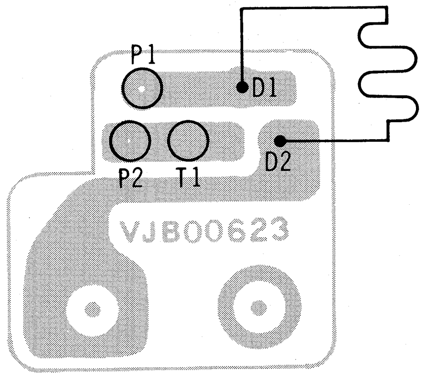
REEL SENSOR BOARD (VJB00633)


IC6551
P6504
1
3
1
3
4
2
VJB00633

TAKEUP PHOTO TR BOARD (VJB00520)

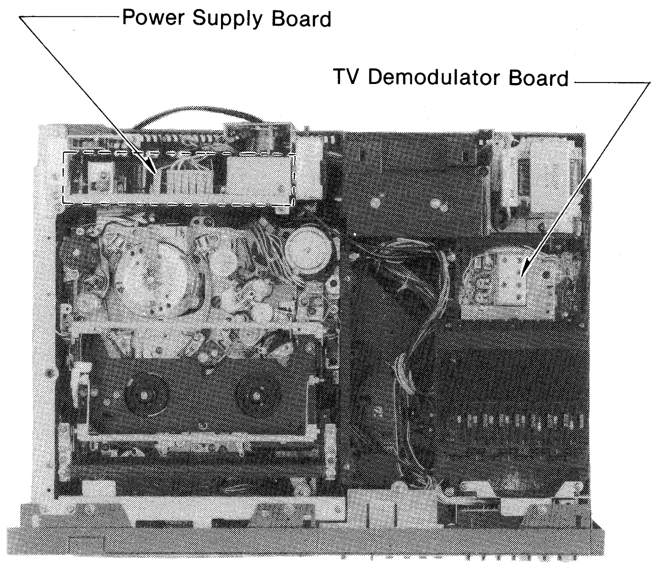

TO SERVO SECTION
TAKE UP PHOTO TR P10-1
E
C
Q6552

DEW SENSOR BOARD (VJB00623)

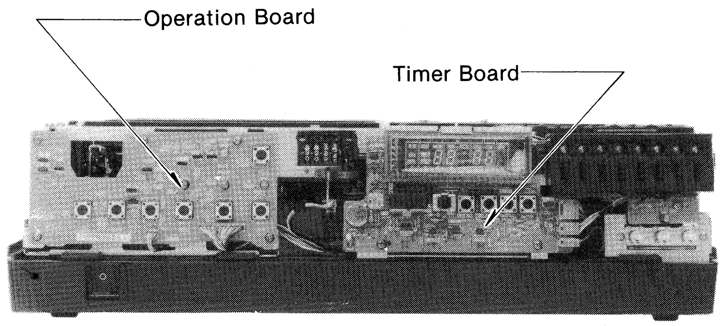

P1
D1
P2
T1
D2
VJB00623

CIRCUIT BOARD LAYOUT

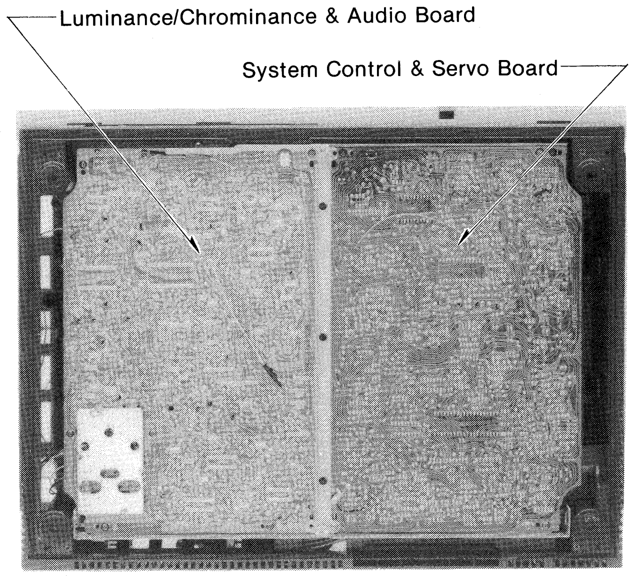
TOP VIEW


Power Supply Board
TV Demodulator Board

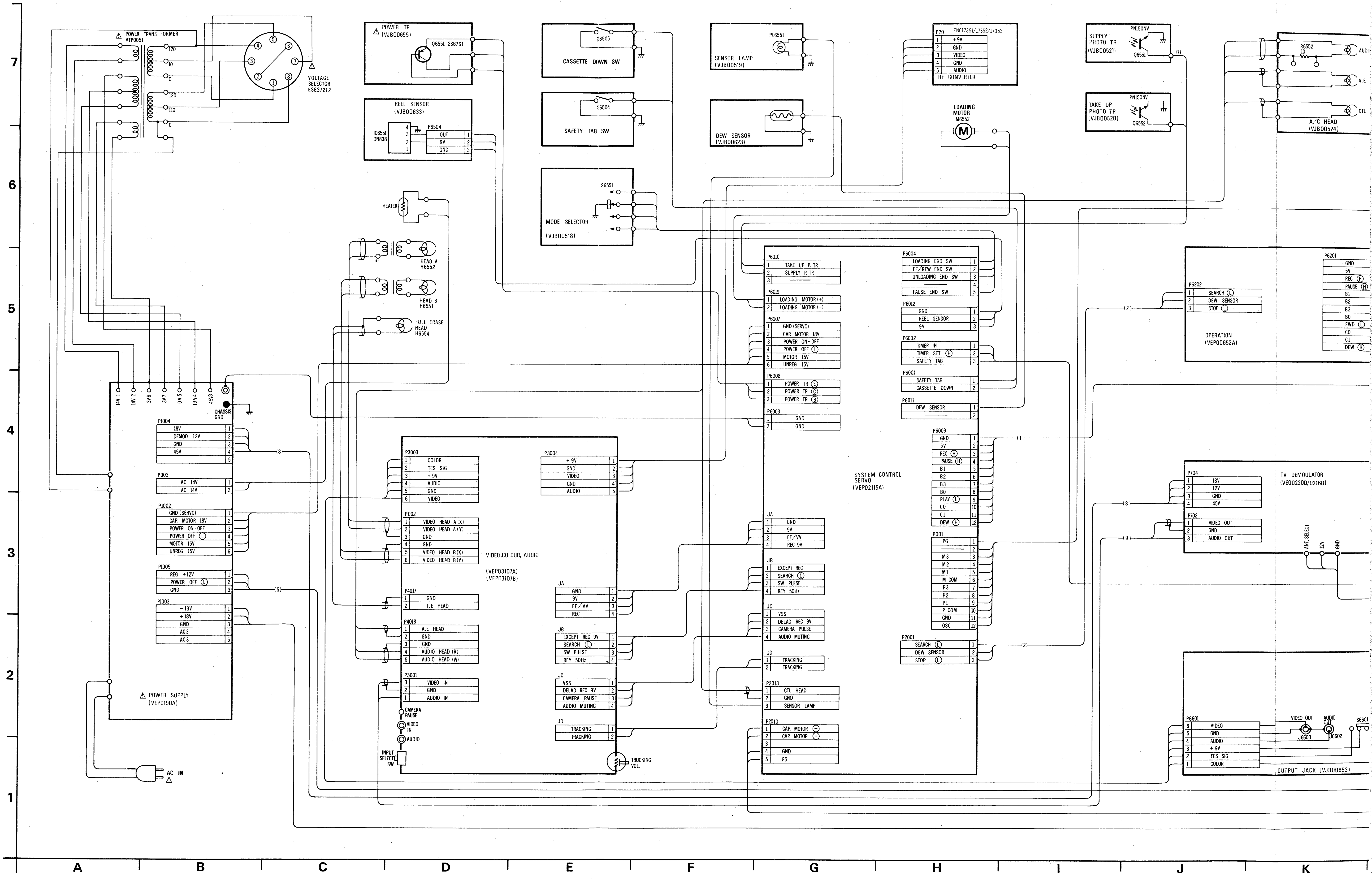
FRONT VIEW


Operation Board
Timer Board

BOTTOM VIEW

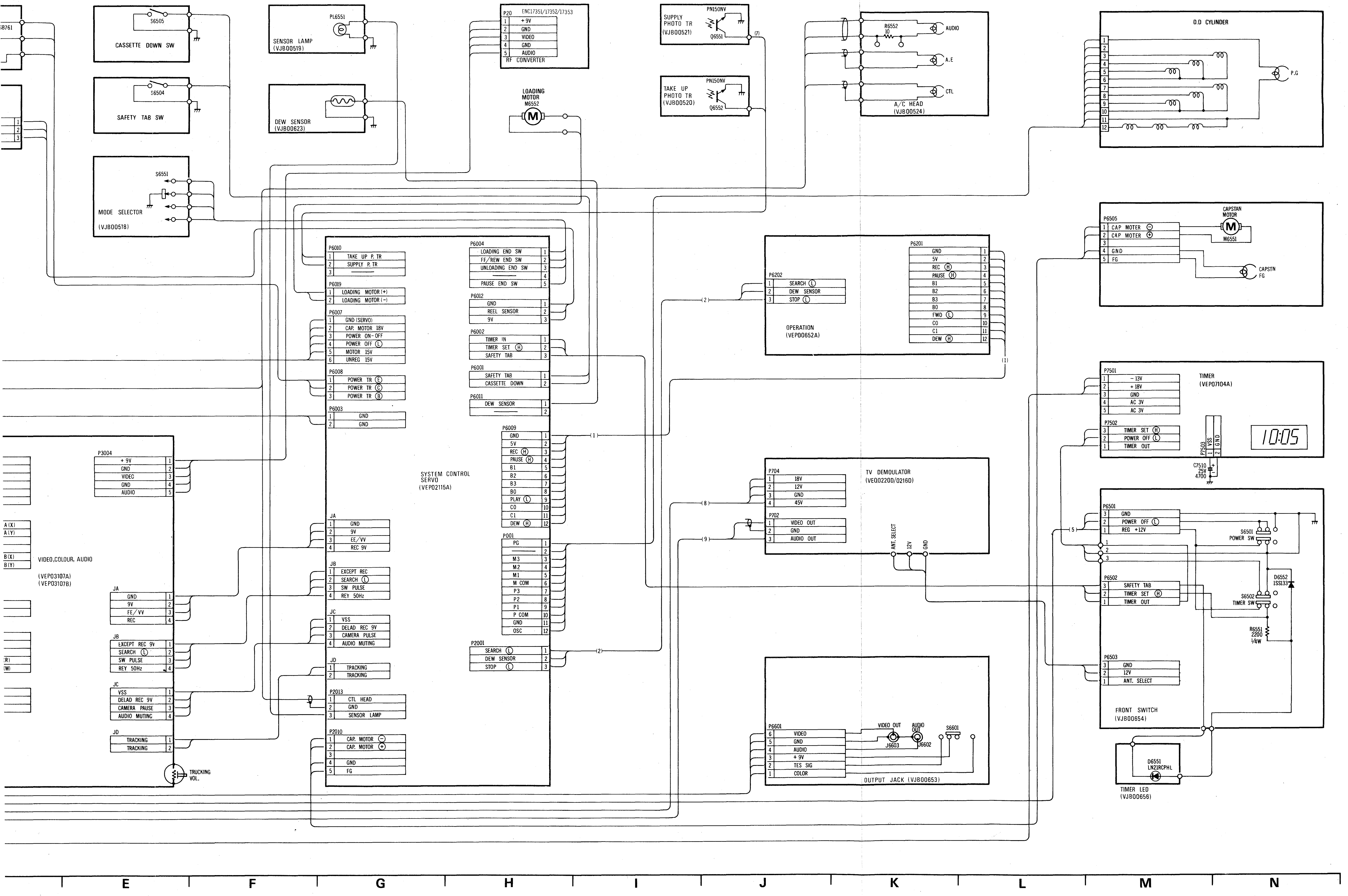

Luminance/Chrominance & Audio Board
System Control & Servo Board

INTERCONNECTION SCHEMATIC DIAGRAM



⚠ POWER TRANS FORMER
VTP0051
120
10
0
120
110
0
VOLTAGE SELECTOR
ESE37212
⚠ POWER TR
(VJB00655)
Q6551 2SB761
REEL SENSOR
(VJB00633)
IC6551
DN838
P6504
OUT
9V
GND
HEATER
HEAD A
H6552
HEAD B
H6551
FULL ERASE HEAD
H6554
S6505
CASSETTE DOWN SW
S6504
SAFETY TAB SW
S6551
MODE SELECTOR
(VJB00518)
PL6551
SENSOR LAMP
(VJB00519)
DEW SENSOR
(VJB00623)
P20
ENC17351/17352/17353
+9V
GND
VIDEO
GND
AUDIO
RF CONVERTER
LOADING MOTOR
M6552
SUPPLY PHOTO TR
(VJB00521)
PN150NV
Q6551
TAKE UP PHOTO TR
(VJB00520)
Q6552
R6552
10
AUDIO
A.E
CTL
A/C HEAD
(VJB00524)
14V 1
14V 2
3V6
3V 7
0V 5
19V4
45V3
CHASSIS GND
P1004
18V
DEMOD 12V
GND
45V
P003
AC 14V
AC 14V
P1002
GND (SERVO)
CAP. MOTOR 18V
POWER ON-OFF
POWER OFF Ⓛ
MOTOR 15V
UNREG 15V
P1005
REG +12V
POWER OFF Ⓛ
GND
P1003
-13V
+18V
GND
AC3
AC3
⚠ POWER SUPPLY
(VEP0190A)
AC IN
⚠
P3003
COLOR
TES SIG
+9V
AUDIO
GND
VIDEO
P3004
+9V
GND
VIDEO
GND
AUDIO
P002
VIDEO HEAD A (X)
VIDEO HEAD A (Y)
GND
GND
VIDEO HEAD B (X)
VIDEO HEAD B (Y)
VIDEO, COLOUR, AUDIO
(VEP03107A)
(VEP03107B)
P4017
GND
F.E HEAD
P4018
A.E HEAD
GND
GND
AUDIO HEAD (R)
AUDIO HEAD (W)
P3001
VIDEO IN
GND
AUDIO IN
CAMERA PAUSE
VIDEO IN
AUDIO
INPUT SELECT SW
JA
GND
9V
EE/VV
REC
JB
EXCEPT REC 9V
SEARCH Ⓛ
SW PULSE
REY 50Hz
JC
VSS
DELAD REC 9V
CAMERA PAUSE
AUDIO MUTING
JD
TRACKING
TRACKING
TRUCKING VOL.
P6010
TAKE UP P. TR
SUPPLY P. TR
P6019
LOADING MOTOR (+)
LOADING MOTOR (-)
P6007
GND (SERVO)
CAP. MOTOR 18V
POWER ON-OFF
POWER OFF Ⓛ
MOTOR 15V
UNREG 15V
P6008
POWER TR Ⓔ
POWER TR Ⓒ
POWER TR Ⓑ
P6003
GND
GND
SYSTEM CONTROL SERVO
(VEP02115A)
JA
GND
9V
EE/VV
REC 9V
JB
EXCEPT REC
SEARCH Ⓛ
SW PULSE
REY 50Hz
JC
VSS
DELAD REC 9V
CAMERA PULSE
AUDIO MUTING
JD
TPACKING
TRACKING
P2013
CTL HEAD
GND
SENSOR LAMP
P2010
CAP. MOTOR ⊖
CAP. MOTOR ⊕
GND
FG
P6004
LOADING END SW
FF/REW END SW
UNLOADING END SW
PAUSE END SW
P6012
GND
REEL SENSOR
9V
P6002
TIMER IN
TIMER SET Ⓗ
SAFETY TAB
P6001
SAFETY TAB
CASSETTE DOWN
P6011
DEW SENSOR
P6009
GND
5V
REC Ⓗ
PAUSE Ⓗ
B1
B2
B3
B0
PLAY Ⓛ
C0
C1
DEW Ⓗ
P001
PG
M3
M2
M1
M COM
P3
P2
P1
P COM
GND
OSC
P2001
SEARCH Ⓛ
DEW SENSOR
STOP Ⓛ
P6202
SEARCH Ⓛ
DEW SENSOR
STOP Ⓛ
OPERATION
(VEP00652A)
P6201
GND
5V
REC Ⓗ
PAUSE Ⓗ
B1
B2
B3
B0
FWD Ⓛ
C0
C1
DEW Ⓗ
P704
18V
12V
GND
45V
P702
VIDEO OUT
GND
AUDIO OUT
TV DEMODULATOR
(VEQ0220D/0216D)
ANT. SELECT
12V
GND
P6601
VIDEO
GND
AUDIO
+9V
TES SIG
COLOR
VIDEO OUT
J6603
AUDIO OUT
J6602
S6601
OUTPUT JACK (VJB00653)
(8)
(5)
(1)
(2)
(8)
(9)
(2)
(7)
7
6
5
4
3
2
1
A
B
C
D
E
F
G
H
I
J
K

AGRAM


CASSETTE DOWN SW
S6505
SAFETY TAB SW
S6504
MODE SELECTOR
S6551
(VJB00518)
SENSOR LAMP
PL6551
(VJB00519)
DEW SENSOR
(VJB00623)
P20 ENC17351/17352/17353
1 +9V
2 GND
3 VIDEO
4 GND
5 AUDIO
RF CONVERTER
LOADING MOTOR
M6552
SUPPLY PHOTO TR
(VJB00521)
PN150NV
Q6551
TAKE UP PHOTO TR
(VJB00520)
Q6552
R6552 10
AUDIO
A.E
CTL
A/C HEAD
(VJB00524)
D.D CYLINDER
P.G
P6505
1 CAP MOTER ⊖
2 CAP MOTER ⊕
3
4 GND
5 FG
CAPSTAN MOTOR
M6551
CAPSTN FG
P6010
1 TAKE UP P. TR
2 SUPPLY P. TR
P6019
1 LOADING MOTOR (+)
2 LOADING MOTOR (−)
P6007
1 GND (SERVO)
2 CAP. MOTOR 18V
3 POWER ON-OFF
4 POWER OFF Ⓛ
5 MOTOR 15V
6 UNREG 15V
P6008
1 POWER TR Ⓔ
2 POWER TR Ⓒ
3 POWER TR Ⓑ
P6003
1 GND
2 GND
P6004
LOADING END SW 1
FF/REW END SW 2
UNLOADING END SW 3
4
PAUSE END SW 5
P6012
GND 1
REEL SENSOR 2
9V 3
P6002
TIMER IN 1
TIMER SET Ⓗ 2
SAFETY TAB 3
P6001
SAFETY TAB 1
CASSETTE DOWN 2
P6011
DEW SENSOR 1
2
P6009
GND 1
5V 2
REC Ⓗ 3
PAUSE Ⓗ 4
B1 5
B2 6
B3 7
B0 8
PLAY Ⓛ 9
C0 10
C1 11
DEW Ⓗ 12
SYSTEM CONTROL SERVO (VEP02115A)
JA
1 GND
2 9V
3 EE/VV
4 REC 9V
JB
1 EXCEPT REC
2 SEARCH Ⓛ
3 SW PULSE
4 REY 50Hz
JC
1 VSS
2 DELAD REC 9V
3 CAMERA PULSE
4 AUDIO MUTING
JD
1 TPACKING
2 TRACKING
P2013
1 CTL HEAD
2 GND
3 SENSOR LAMP
P2010
1 CAP. MOTOR ⊖
2 CAP. MOTOR ⊕
3
4 GND
5 FG
P001
PG 1
2
M3 3
M2 4
M1 5
M COM 6
P3 7
P2 8
P1 9
P COM 10
GND 11
OSC 12
P2001
SEARCH Ⓛ 1
DEW SENSOR 2
STOP Ⓛ 3
P3004
+9V 1
GND 2
VIDEO 3
GND 4
AUDIO 5
VIDEO,COLOUR, AUDIO
(VEP03107A)
(VEP03107B)
JA
GND 1
9V 2
FE/VV 3
REC 4
JB
EXCEPT REC 9V 1
SEARCH Ⓛ 2
SW PULSE 3
REY 50Hz 4
JC
VSS 1
DELAD REC 9V 2
CAMERA PAUSE 3
AUDIO MUTING 4
JD
TRACKING 1
TRACKING 2
TRUCKING VOL.
A (X)
A (Y)
B (X)
B (Y)
(R)
(W)
P6202
1 SEARCH Ⓛ
2 DEW SENSOR
3 STOP Ⓛ
P6201
GND 1
5V 2
REC Ⓗ 3
PAUSE Ⓗ 4
B1 5
B2 6
B3 7
B0 8
FWD Ⓛ 9
C0 10
C1 11
DEW Ⓗ 12
OPERATION (VEP00652A)
(1)
(2)
(7)
(8)
(9)
(5)
P704
1 18V
2 12V
3 GND
4 45V
P702
1 VIDEO OUT
2 GND
3 AUDIO OUT
TV DEMODULATOR (VEQ0220D/0216D)
ANT. SELECT
12V
GND
P7501
1 −13V
2 +18V
3 GND
4 AC 3V
5 AC 3V
TIMER (VEP07104A)
P7502
3 TIMER SET Ⓗ
2 POWER OFF Ⓛ
1 TIMER OUT
P7503
1 VSS
2 GND
10:05
C7510 25V 4700
P6501
3 GND
2 POWER OFF Ⓛ
1 REG +12V
S6501 POWER SW
P6502
3 SAFETY TAB
2 TIMER SET Ⓗ
1 TIMER OUT
S6502 TIMER SW
D6552 1SS133
R6551 2200 1/4W
P6503
3 GND
2 12V
1 ANT. SELECT
FRONT SWITCH (VJB00654)
D6551 LN21RCPHL
TIMER LED (VJB00656)
P6601
6 VIDEO
5 GND
4 AUDIO
3 +9V
2 TES SIG
1 COLOR
VIDEO OUT
AUDIO OUT
J6603
J6602
S6601
OUTPUT JACK (VJB00653)
E
F
G
H
I
J
K
L
M
N

ORDER NO. VRD-8104-533

Service Manual

Video Cassette Recorder

Panasonic VHS

NV-2000 -E -B -EG -EV

Vol. 4

Exploded View
Replacement Parts List

SPECIFICATIONS

Power Source:	110, 120, 220, 240V AC 50/60Hz
Power Consumption:	Approx. 38 watts
Television System:	CCIR: 625 lines, 50 fields PAL colour signal (NV-2000-E, -B, -EG, -EV) D.D.R-SECAM signal (NV-2000-EG)
Video Recording System:	2 rotary heads, helical scanning system Luminance: FM azimuth recording Colour signal: converted subscarrier phase shift recording
Audio Track:	1 track
Tape Format:	Tape width 12.7mm high density tape
Tape Speed:	23.39mm/s
Record/Playback Time:	240 min. with NV-E240
FF/REW Time:	Less than 7.5 min. with NV-E240
Heads:	Video: 2 rotary heads Audio/Control: 1 stationary head Erase: 1 full track erase
Input Level:	Video: VIDEO IN connector (BNC) 1.0Vp-p, 75Ω unbalanced Audio: LINE IN jack −20dB, 100kΩ unbalanced

Output Level:	Video: VIDEO OUT connector (BNC) 1.0Vp-p, 75Ω unbalanced Audio: LINE OUT jack −6dB, 600Ω unbalanced RF Modulated: NV-2000-E, -B, -EG, -EV, UHF channel 36 (±4) 75Ω unbalanced
Weight:	10.0kg
Dimensions:	480(W)×136(H)×365(D)mm
Accessory Supplied:	1 pc. DIN-DIN coaxial cable, VJA0130
Optional Accessories:	Video cassette tape: NV-E240 Approx. 344m, 240 min. NV-E180 Approx. 258m, 180 min. NV-E120 Approx. 174m, 120 min. NV-E60 Approx. 88m, 60 min. Video Camera, WV-2600E, WV-3000E, WV-3200E

Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

Panasonic®

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

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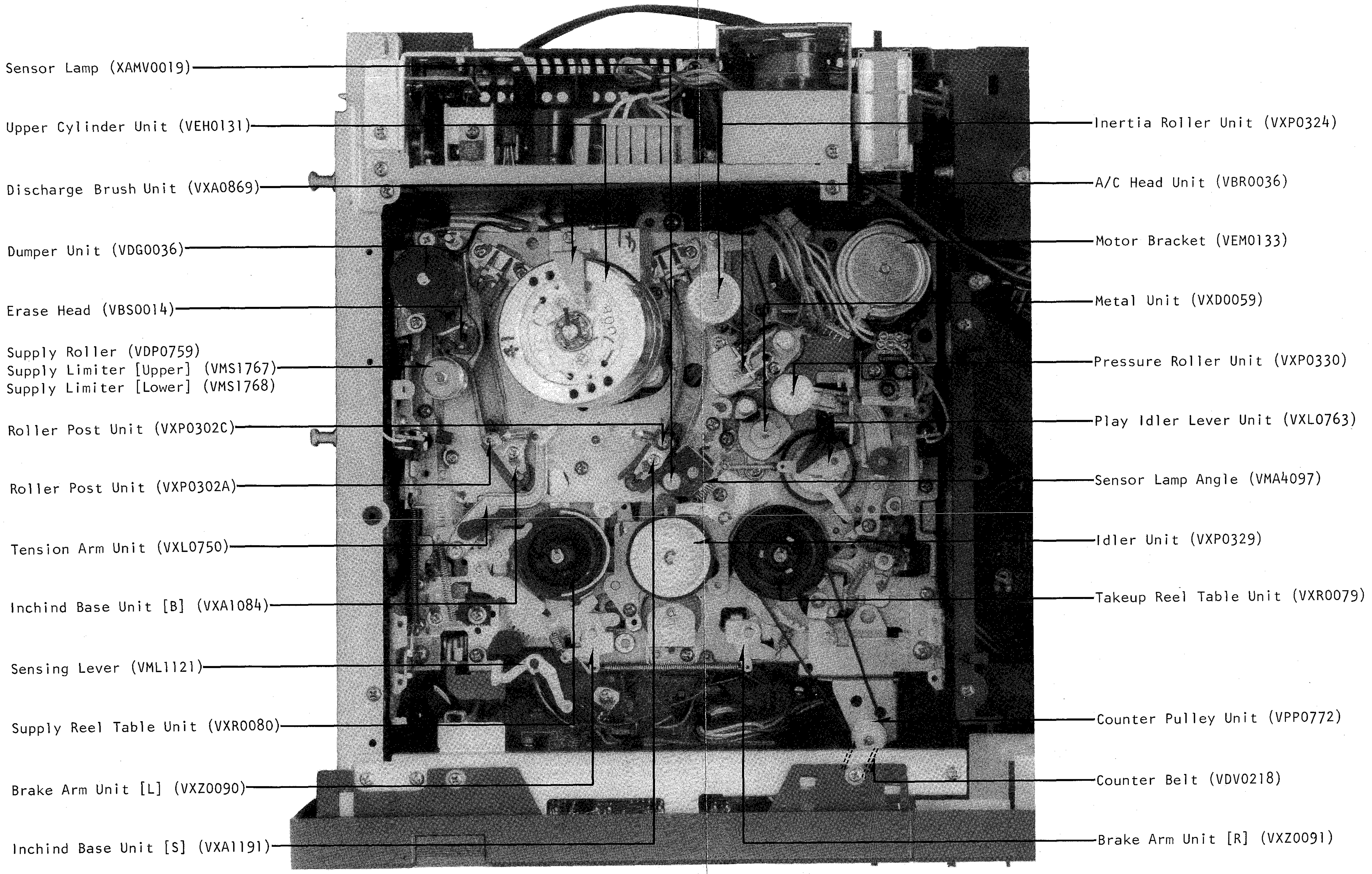
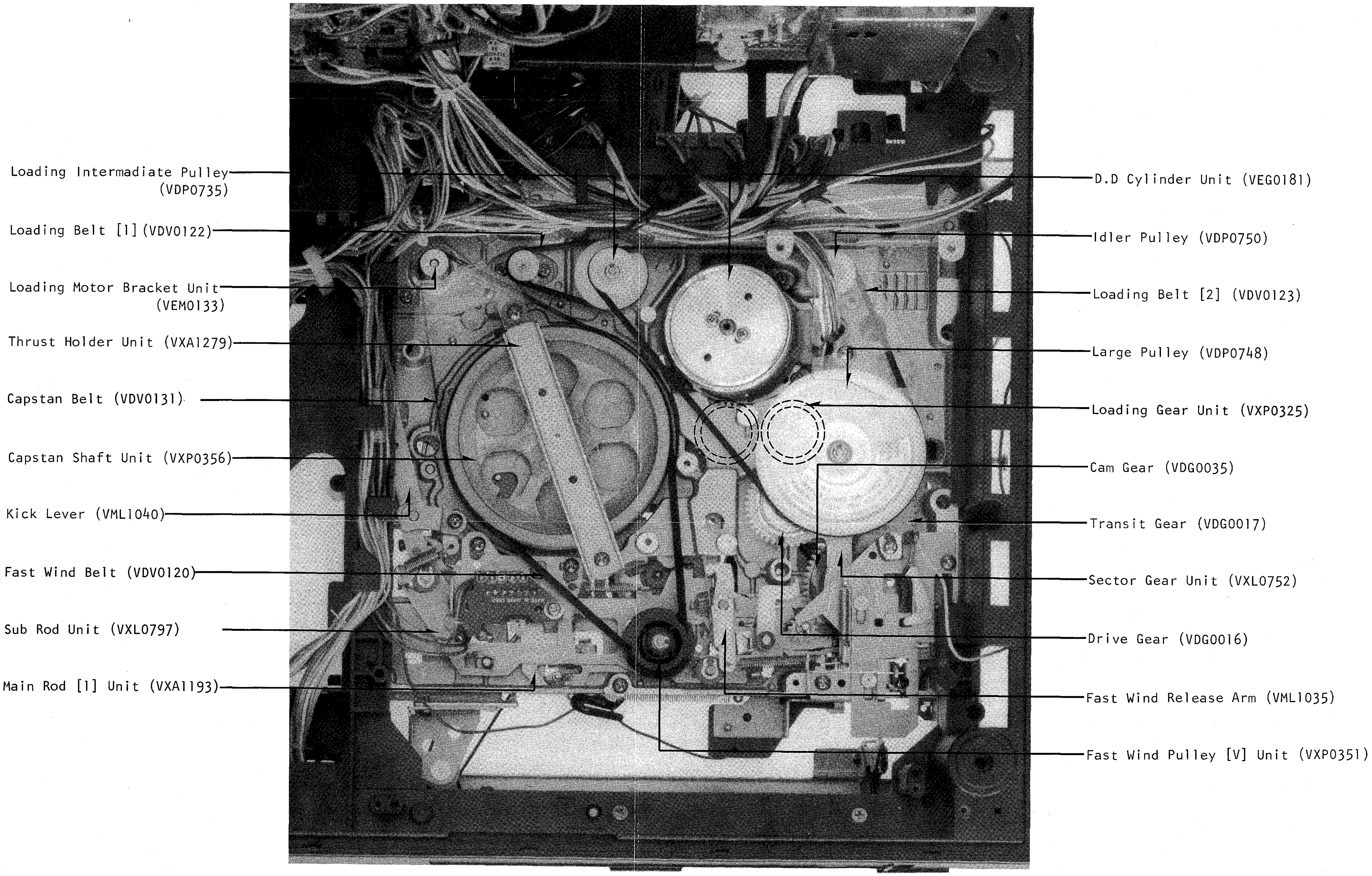
INNER PARTS LOCATION

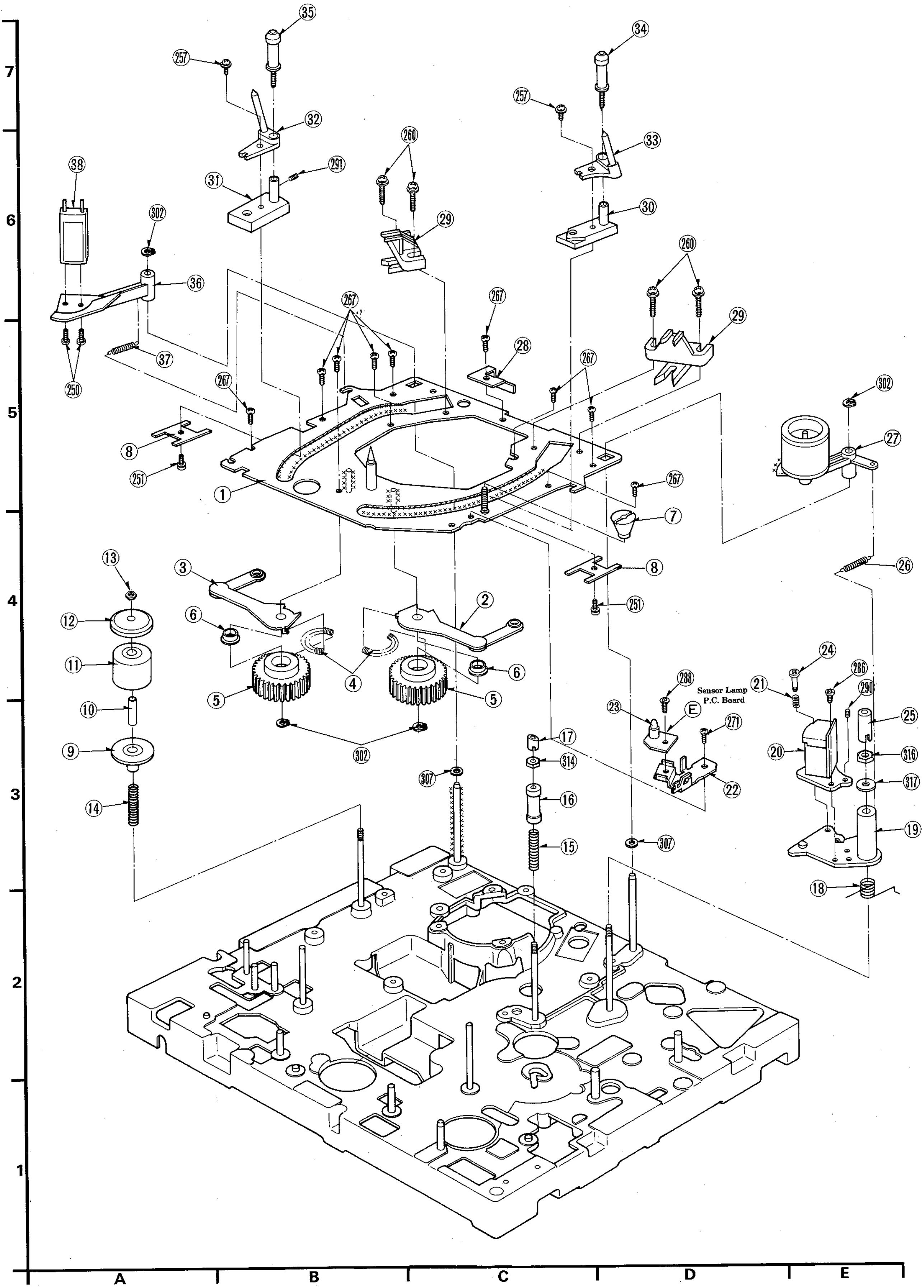
TOP VIEW


Sensor Lamp (XAMV0019)
Upper Cylinder Unit (VEH0131)
Discharge Brush Unit (VXA0869)
Dumper Unit (VDG0036)
Erase Head (VBS0014)
Supply Roller (VDP0759)
Supply Limiter [Upper] (VMS1767)
Supply Limiter [Lower] (VMS1768)
Roller Post Unit (VXP0302C)
Roller Post Unit (VXP0302A)
Tension Arm Unit (VXL0750)
Inchind Base Unit [B] (VXA1084)
Sensing Lever (VML1121)
Supply Reel Table Unit (VXR0080)
Brake Arm Unit [L] (VXZ0090)
Inchind Base Unit [S] (VXA1191)
Inertia Roller Unit (VXP0324)
A/C Head Unit (VBR0036)
Motor Bracket (VEM0133)
Metal Unit (VXD0059)
Pressure Roller Unit (VXP0330)
Play Idler Lever Unit (VXL0763)
Sensor Lamp Angle (VMA4097)
Idler Unit (VXP0329)
Takeup Reel Table Unit (VXR0079)
Counter Pulley Unit (VPP0772)
Counter Belt (VDV0218)
Brake Arm Unit [R] (VXZ0091)

BOTTOM VIEW


Loading Intermadiate Pulley (VDP0735)
Loading Belt [1] (VDV0122)
Loading Motor Bracket Unit (VEM0133)
Thrust Holder Unit (VXA1279)
Capstan Belt (VDV0131)
Capstan Shaft Unit (VXP0356)
Kick Lever (VML1040)
Fast Wind Belt (VDV0120)
Sub Rod Unit (VXL0797)
Main Rod [1] Unit (VXA1193)
D.D Cylinder Unit (VEG0181)
Idler Pulley (VDP0750)
Loading Belt [2] (VDV0123)
Large Pulley (VDP0748)
Loading Gear Unit (VXP0325)
Cam Gear (VDG0035)
Transit Gear (VDG0017)
Sector Gear Unit (VXL0752)
Drive Gear (VDG0016)
Fast Wind Release Arm (VML1035)
Fast Wind Pulley [V] Unit (VXP0351)

EXPLODED VIEW ❶ *Transport Section*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Sensor Lamp P.C. Board
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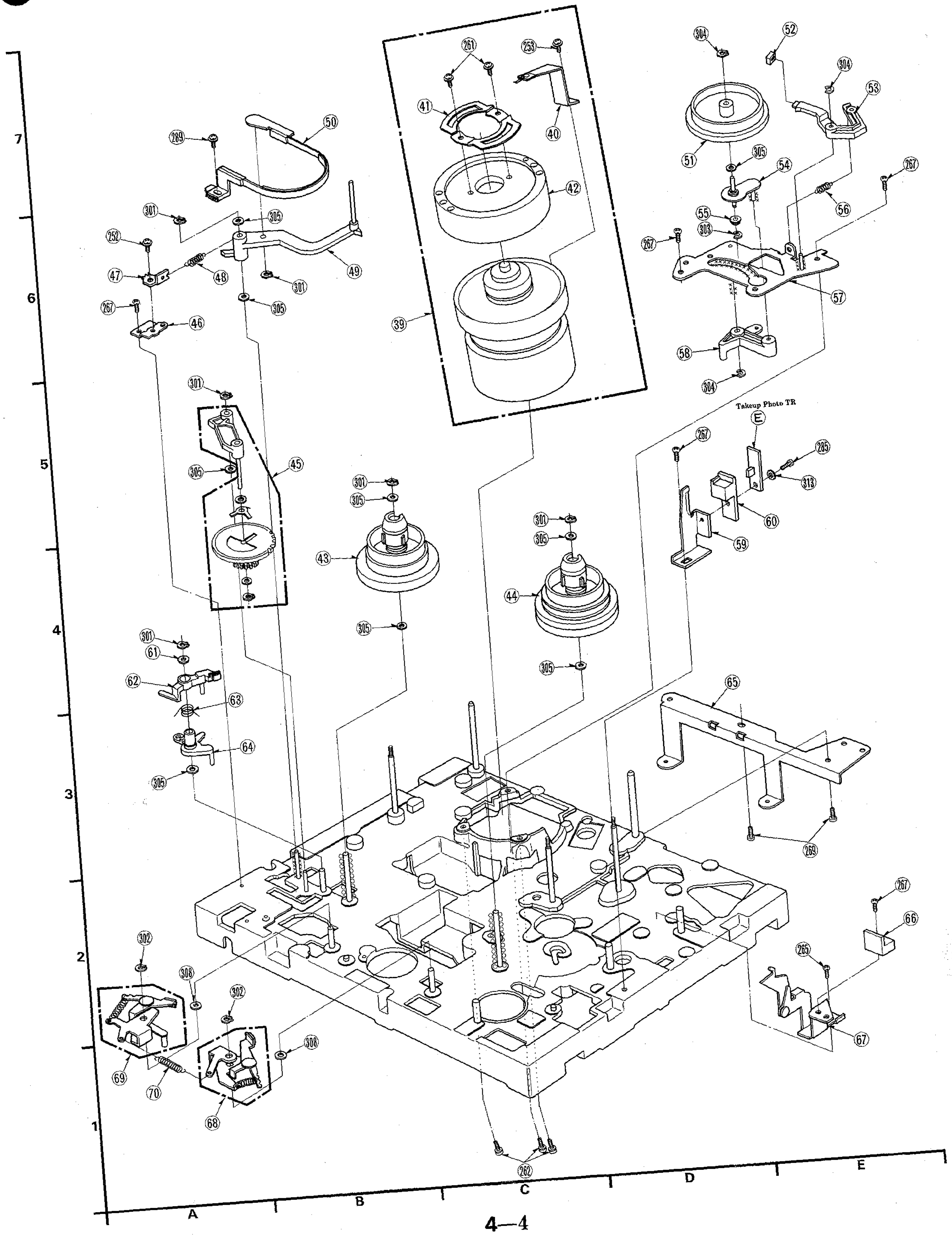
❷ *Moving Mechanism Section-(1)*



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Takeup Photo TR
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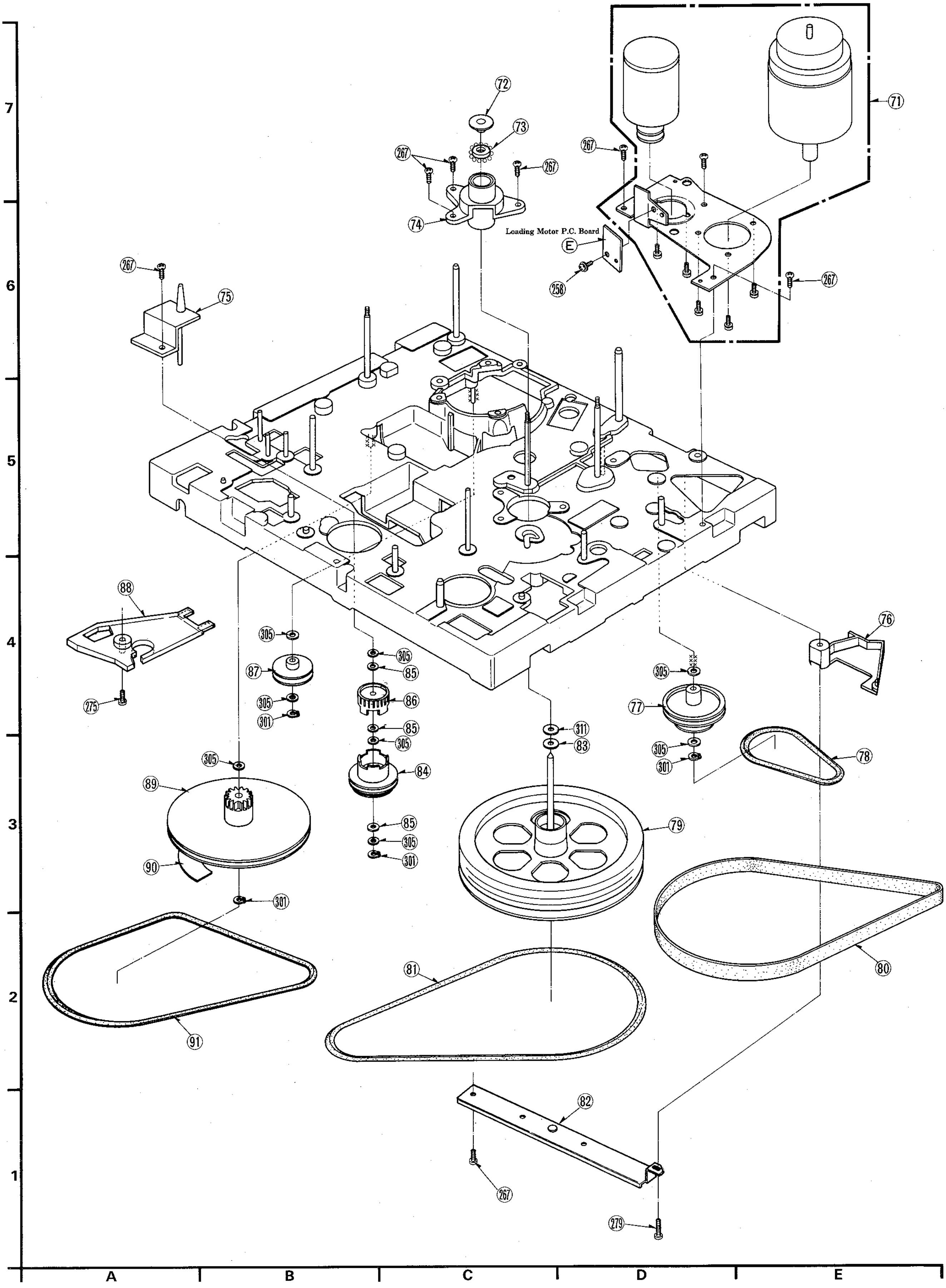
❸ *Chassis Parts Section*



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Loading Motor P.C. Board
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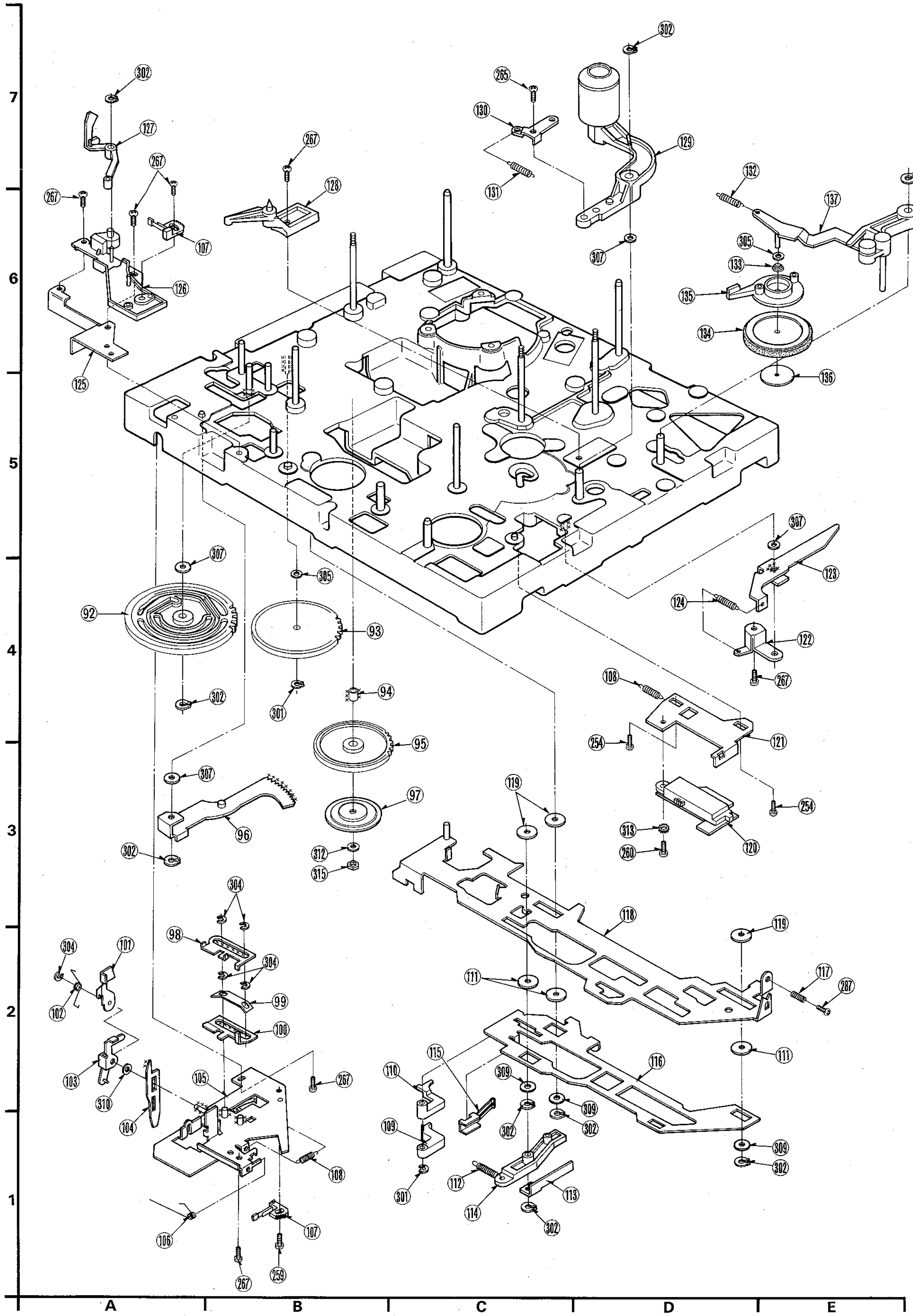
❹ *Moving Mechanism Section-(2)*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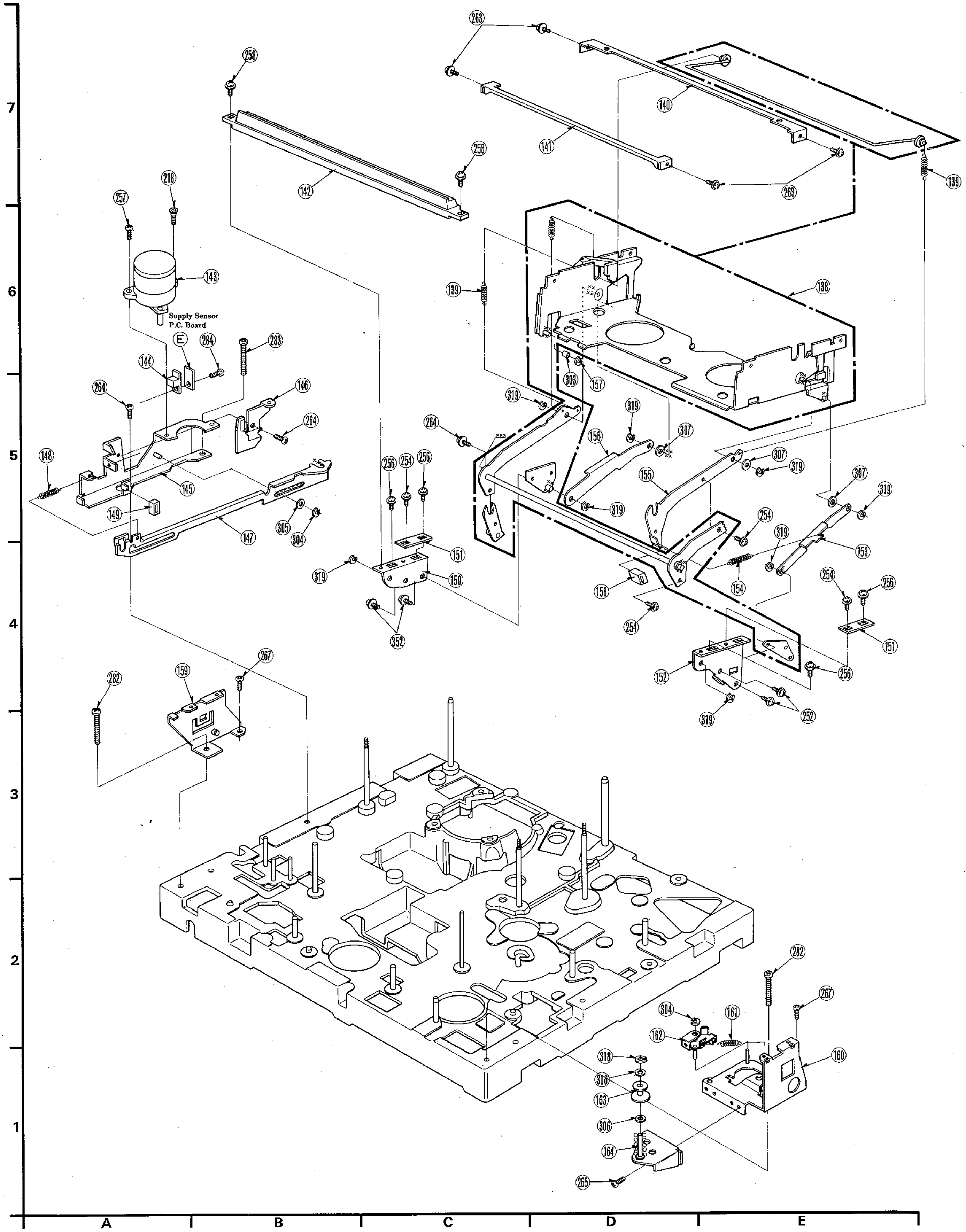
❺ *Chassis Frame Section*



263
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Supply Sensor
P.C. Board
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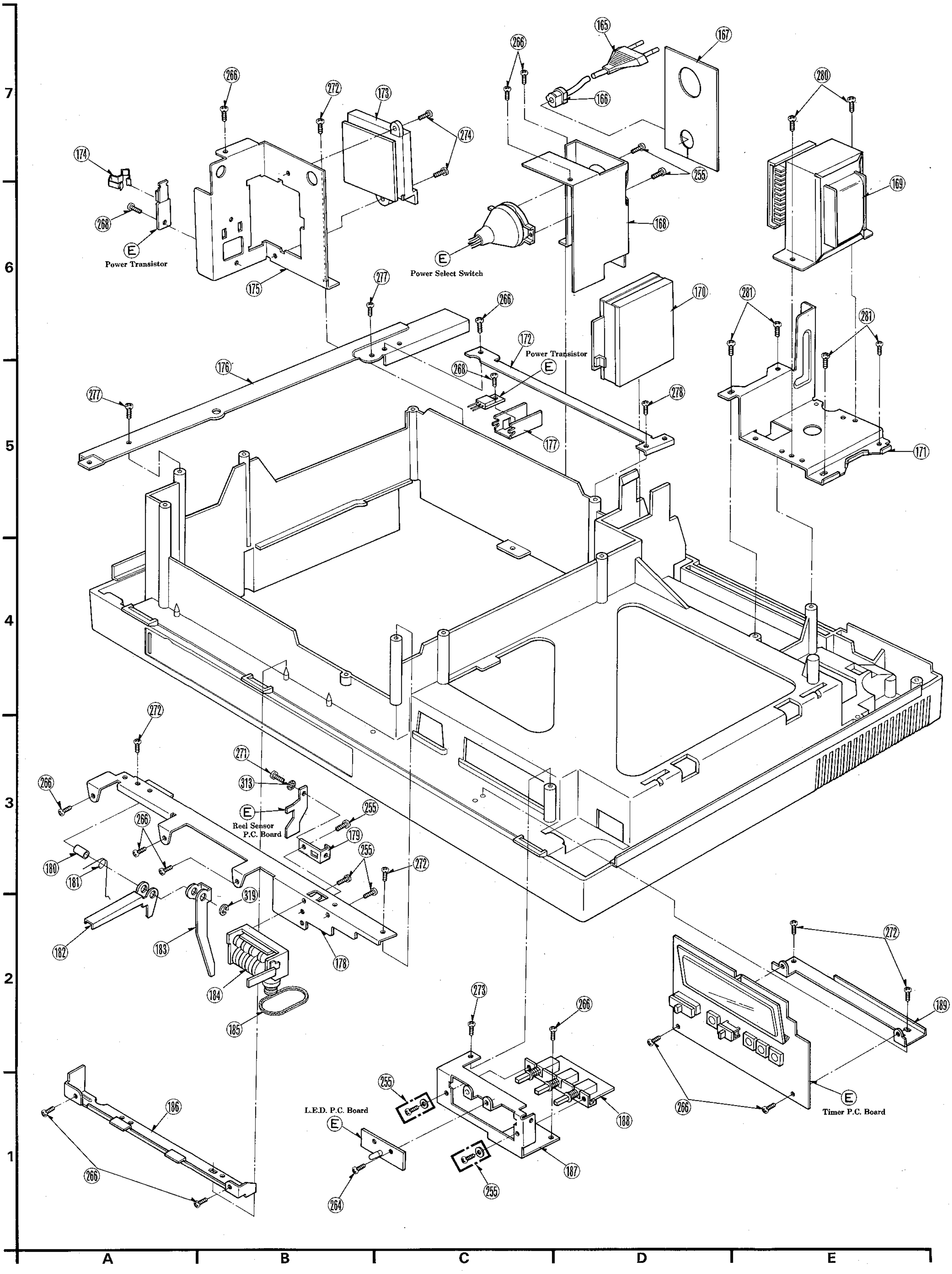
❻ *Timer & Chassis Frame Section*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Power Transistor
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Power Select Switch
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172
Power Transistor
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Reel Sensor P.C. Board
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L.E.D. P.C. Board
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186
188
266
E
Timer P.C. Board
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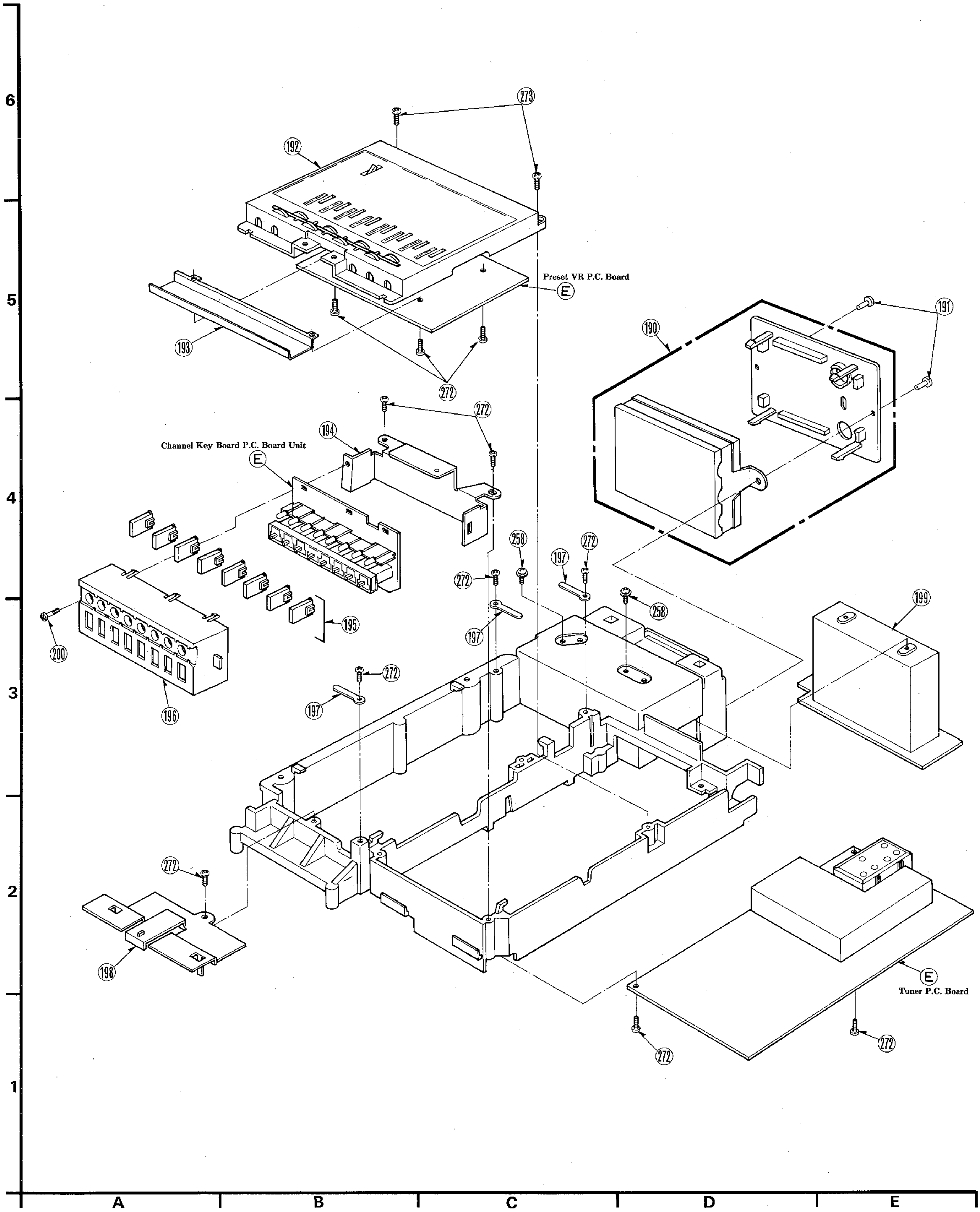
266

⑦ Tuner Parts Section



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192
Preset VR P.C. Board
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194
Channel Key Board P.C. Board Unit
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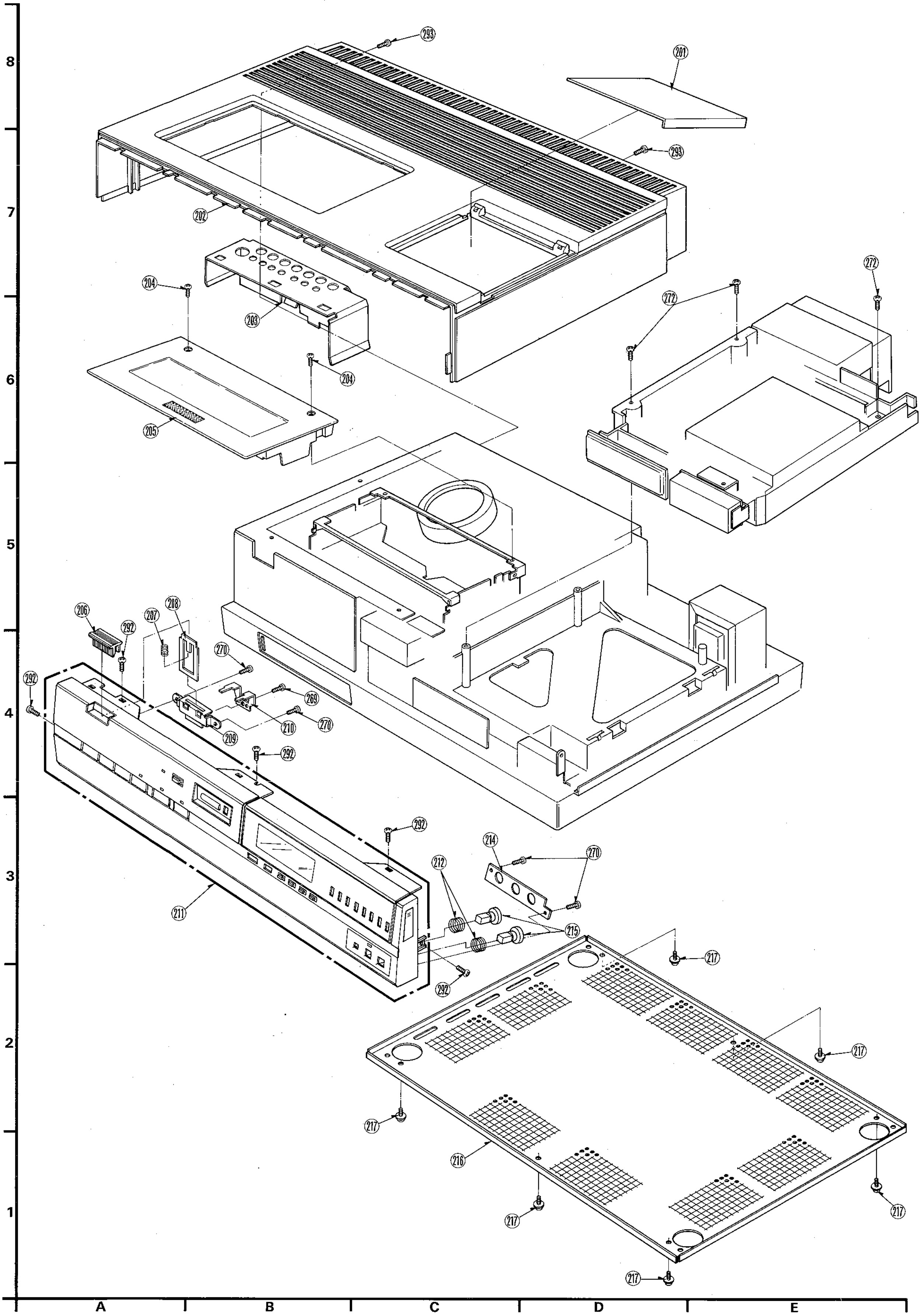
198
Tuner P.C. Board
E

❽ *Casing Parts Section*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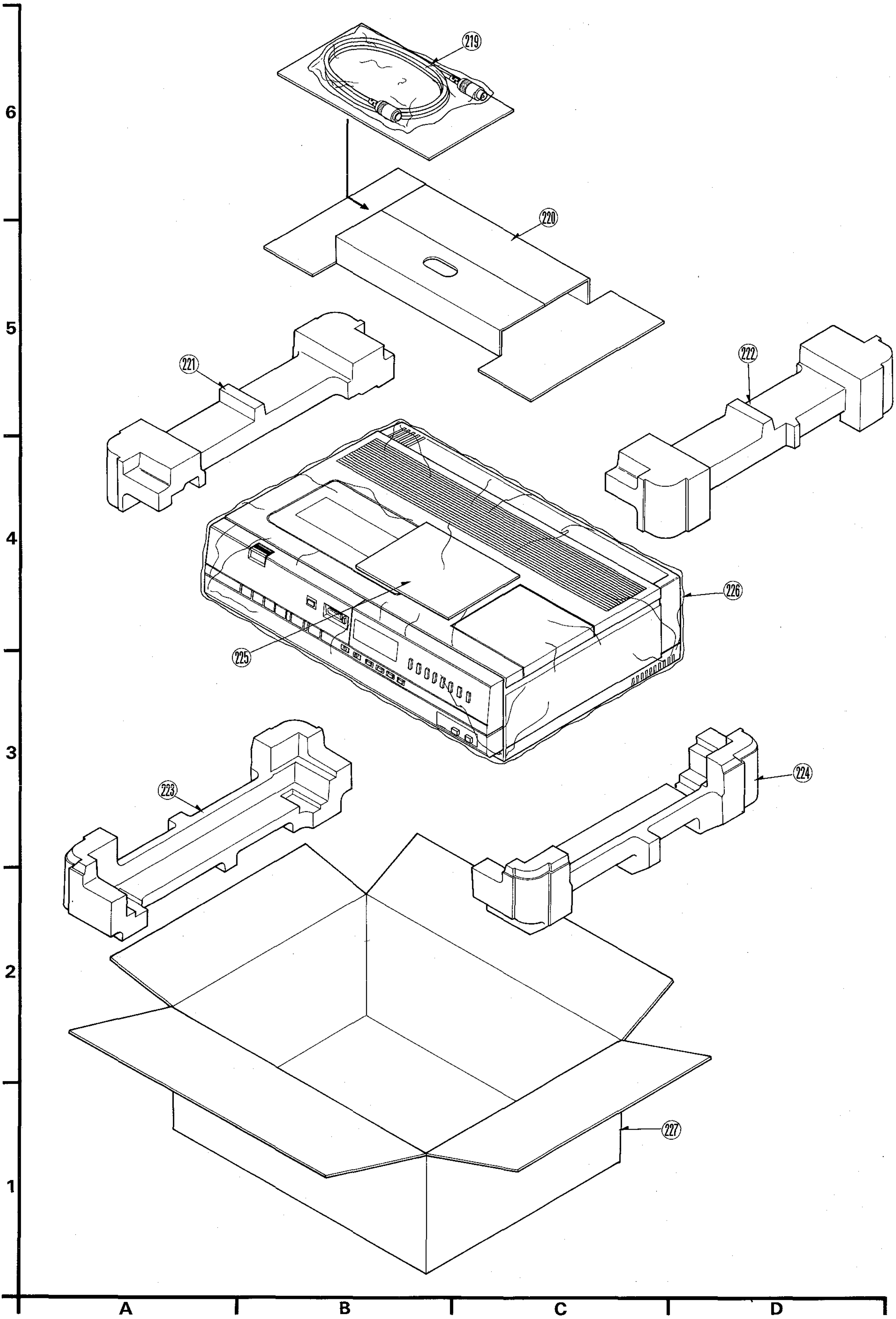
❾ *Packing Parts Section*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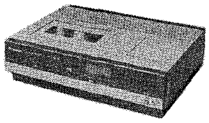
MECHANICAL REPLACEMENT PARTS LIST

Model No. NV-2000E,B,EG,EV

Notes:
1. * Be sure to make your orders of replacement parts according to this list.
   * "Ⓝ" in Remarks column indicates new parts.



Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
1 (1)		VXK0424	Loading Base Unit	1	
2 (1)		VXL0754	Loading Arm (R) Unit	1	
3 (1)		VXL0753	Loading Arm (L) Unit	1	
4 (1)		VMB0669	Loading Spring	2	
5 (1)		VXP0325	Loading Gear	2	
6 (1)		VMX0257	Arm Sleeve	2	
7 (1)		VHN0014	Adjust Nut	1	
8 (1)		VMA3997	Shaft Holder Spring	2	
9 (1)		VMS1768	Under Limiter	1	
10 (1)		VMX0288	Collar	1	
11 (1)		VDP0759	Supply Roller	1	
12 (1)		VMS1767	Upper Limiter	1	
13 (1)		VHD0045	Nylon Nut	1	
14 (1)		VMB0754	Supply Limiter Spring	1	
15 (1)		VMB0699	Spring (P4)	1	
16 (1)		VMX0280	Post Sleeve	1	
17 (1)		VMX0271	Post Cap (P4)	1	
18 (1)		VMB0668	A/C Head Hight Spring	1	
19 (1)		VXA1184	Head Base (B) Unit	1	
20 (1)		VBR0036	A/C Head Unit	1	
21 (1)		VMB0404	Adjust Spring	1	
22 (1)		VMA4097	Sensor Lamp Angle	1	
23 (1)		XAMV0019	Sensor Lamp	1	
24 (1)		VHD0054	Adjust Screw	1	
25 (1)		VMX0256	Stopper Snap	1	
26 (1)		VMB0667	Inertia Roller Arm Spring	1	
27 (1)		VXP0324	Inertia Roller Unit	1	
28 (1)		VMA4122	Lead Wire Holder	1	
29 (1)		VMD0100	Post Stopper	2	
30 (1)		VXA1189	Shaft Holder (S) Unit	1	
31 (1)		VXA1190	Shaft Holder (T) Unit	1	
32 (1)		VXA1084	Inclined Base Unit (B)	1	
33 (1)		VXA1191	Inclined Base Unit (S)	1	
34 (1)		VXP0302C	Roller Post Unit	1	
35 (1)		VXP0302A	Roller Post Unit	1	
36 (1)		VML1032	Erase Head Lever	1	
37 (1)		VMB0665	Erase Head Lever Spring	1	
38 (1)		VBS0014	Erase Head	1	
39 (2)		VEG0181	D.D.Cylinder Unit	1	
40 (2)		VXA0869	Discharge Brush Unit	1	
41 (2)		VMA3165	Wire Cover	1	
42 (2)		VEH0131	Upper Cylinder Unit	1	
43 (2)		VXR0080	Supply Reel Table Unit	1	
44 (2)		VXR0079	Takeup Reel Table Unit	1	
45 (2)		VXP0353	Takeup Gear Unit	1	
46 (2)		VMA4090	Adjust Bracket	1	
47 (2)		VMA4089	Adjust Hook	1	
48 (2)		VMB0666	Tension Spring	1	
49 (2)		VXL0750	Tension Arm Unit	1	
50 (2)		VXZ0076	Tension Band Unit	1	
51 (2)		VXP0329	Idler Unit	1	
52 (2)		VMG0210	Flection Gum	1	
53 (2)		VML1026	Flection Lever	1	
54 (2)		VXL0760	Idler Arm Unit	1	
55 (2)		VDP0746	Guide Roller	1	
56 (2)		VMB0664	Flection Lever Spring	1	
57 (2)		VXA1198	Idler Base Unit	1	
58 (2)		VXL0769	Idler Lever Unit	1	
59 (2)		VMA4096	Holder Angle	1	
60 (2)		VMD0091	Transistor Holder (R)	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
61 (2)		VMX0249	Soft Brake Stopper	1	
62 (2)		VXZ0100	Soft Brake Arm Unit	1	
63 (2)		VMB0701	Soft Brake Coil Spring	1	
64 (2)		VML1028	Soft Brake Guide	1	
65 (2)		VMA4185	Chassis Bracket	1	
66 (2)		VEK1129	Dew Sensor Unit	1	
67 (2)		VXA1178	Opener Unit	1	
68 (2)		VXZ0091	Brake Arm (R) Unit	1	
69 (2)		VXZ0090	Brake Arm (L) Unit	1	
70 (2)		VMB0661	Brake Arm Spring	1	
71 (3)		VEM0133	Motor Bracket Unit	1	
72 (3)		VMX0251	Oil Seel	1	
73 (3)		VMD0104	Oil Pool	1	
74 (3)		VXD0059	Metal Unit	1	
75 (3)		VXA1278	Fast Wind Pulley Bracket Unit	1	
76 (3)		VMD0133	Belt Holder	1	
77 (3)		VDP0735	Loading Intermadiate Pulley	1	
78 (3)		VDV0122	Loading Belt (1)	1	
79 (3)		VXP0356	Capstan Shaft Unit	1	
80 (3)		VDV0131	Capstan Belt	1	
81 (3)		VDV0120	Fast Wind Belt	1	
82 (3)		VXA1279	Thrust Holder Unit	1	
83 (3)		VMX0265	Thrust Washer	1	
84 (3)		VXP0351	Fast Wind Pulley (V) Unit	1	
85 (3)		VMX0157	Thrust Washer	3	
86 (3)		VXP0352	Fast Wind Pulley (B) Unit	1	
87 (3)		VDP0750	Idler Pulley	1	
88 (3)		VGF0021	Belt Cover Unit	1	
89 (3)		VDP0748	Large Pulley	1	
90 (3)		VQL1137	Pulley Caution Lavel	1	
91 (3)		VDV0123	Loading Belt (2)	1	
92 (4)		VDG0035	Cam Gear	1	
93 (4)		VDG0017	Transit Gear	1	
94 (4)		VMX0268	Drive Gear Sleeve	1	
95 (4)		VDG0016	Drive Gear	1	
96 (4)		VXL0752	Sector Gear Unit	1	
97 (4)		VMA4088	Cap Plate	1	
98 (4)		VMA4151	Obstruction Rod (A)	1	
99 (4)		VMB0705	Rod Hold Spring	1	
100 (4)		VMA4152	Obstruction Rod (B)	1	
101 (4)		VXA1210	Main Lock Lever Unit	1	
102 (4)		VMB0671	Lock Lever Spring	1	
103 (4)		VXA1205	Lock Lever Unit	1	
104 (4)		VMA4100	Stopper Angle	1	
105 (4)		VXA1276	Eject Angle Unit	1	
106 (4)		VMB0673	Stopper Spring	1	
107 (4)		VES0129	Eject Switch Unit	2	
108 (4)		VMB0677	Eject Spring	2	
109 (4)		VML1114	Kick Lever (B)	1	
110 (4)		VML1115	Kick Lever (A)	1	
111 (4)		VMX0122	Slide Washer	3	
112 (4)		VMB0746	Release Arm Spring	1	
113 (4)		VMB0700	Fast Wind Lever Spring	1	
114 (4)		VML1035	Fast Wind Release Arm	1	
115 (4)		VMB0744	Kick Lever Spring	1	
116 (4)		VXL0797	Sub Rod Unit	1	
117 (4)		VMB0680	Adjust Spring	1	
118 (4)		VXA1193	Main Rod (1) Unit	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
119 (4)		VMX0279	Slide Washer	3	
120 (4)		VSS0048	Mode Select Switch	1	
121 (4)		VMA4094	Switch Holder	1	
122 (4)		VMA4095	Lever Holder	1	
123 (4)		VML1040	Kick Lever	1	
124 (4)		VMB1749	Kick Lever Spring	1	
125 (4)		VMA0294	Support Angle	1	
126 94)		VMK0202	Cassette Support Unit	1	
127 (4)		VML1121	Sensing Lever	1	
128 (4)		VXA1172	Place Fix Bracket Unit	1	
129 (4)		VXP0330	Pressure Roller Unit	1	
130 (4)		VMA4098	Spring Hock Angle	1	
131 (4)		VMB0649	Pressure Spring	1	
132 (4)		VMB0681	Play Idler Spring	1	
133 (4)		VMB0683	Coil Spring	1	
134 (4)		VXP0331	Play Idler (1) Unit	1	
135 (4)		VXP0332	Pause Brake Pulley	1	
136 (4)		VMX0261	Idler Washer	1	
137 (4)		VXL0763	Play Idler Lever Unit	1	
138 (5)		VXA1293	Cassette Up Unit	1	
139 (5)		VMB0730	Cassette Holding Spring	2	
140 (5)		VMA4300	Cassette Compertment Angle	2	
			(A)		
141 (5)		VMA4301	Cassette Compertment Angle	1	
142 (5)		VGQ0153	Cassette Guide	1	
143 (5)		VDG0036	Dunper Unit	1	
144 (5)		VMD0092	Transistor Holder	1	
145 (5)		VXA1199	Sensor Angle Unit	1	
146 (5)		VMA4149	Transisitor Holder Guard	1	
147 (5)		VML1101	Coupling Rod	1	
148 (5)		VMB0674	Holder Spring	1	
149 (5)		VMG0206	Stopper Gum	1	
150 (5)		VMA4003	Holder Angle (L)	1	
151 (5)		VMA3990	Holder Adjustment Plate	2	
152 (5)		VMA4002	Holder Angle (R)	1	
153 (5)		VML1111	Sub Arm (R)	1	
154 (5)		VMB0735	Holder Spring (R)	1	
155 (5)		VML1100	Main Arm (R)	1	
156 (5)		VML1110	Sub Arm (L)	1	
157 (5)		VMX0247	Lock Collar	1	
158 (5)		VMG0215	Cushion	1	
159 (5)		VXA1298	Chassis Angle (B) Unit	1	
160 (5)		VXA1281	Chassis Angle (R) Unit	1	
161 (5)		VMB0757	Soft Brake Spring (T)	1	
162 (5)		VXZ0087	Soft Brake (T) Unit	1	
163 (5)		VDP0772	Counter Pulley	1	
164 (5)		VXA1280	Counter Pulley Angle	1	
165 (6)		VJA0111	AC Cord	1	⚠
165 (6)		VJA0112	AC Cord	1	NV-2000B ⚠
166 (6)		VJF0017	AC Cord Bushing	1	
167 (6)		VGK1561	Power Cord Seet	1	
168 (6)		VMA4335	Power Cord Angle	1	
169 (6)		VTP0051	Power Transformer	1	⚠
170 (6)		ENC17351	RF Converter Unit	1	NV-2000E,EG
170 (6)		ENC17352	RF Converter Unit	1	NV-2000B
170 (6)		ENC17353	RF Converter Unit	1	NV-2000EV
171 (6)		VMA4281	Power Transformer Bracket	1	
172 (6)		VMA4279	Power P.C.Board Angle	1	
173 (6)		VJH0114	Terminal Board	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
174 (6)		VMB0758	Transistor Holder Spring	1	
175 (6)		VSC0518	Heat Sink	1	
176 (6)		VMA4708	Audio P.C.Board Set Angle	1	
177 (6)		VSC0552	Heat Sink	1	
178 (6)		VXA1283	P.C.Board Set Angle	1	
179 (6)		VMA4102	Count Detect Angle	1	
180 (6)		VMX0262	Collar	1	
181 (6)		VMB0687	Eject Lever Spring (B)	1	
182 (6)		VML1119	Eject Lever (A)	1	
183 (6)		VML1120	Eject Lever (B)	1	
184 (6)		VDC0025	Counter	1	
185 (6)		VDV0218	Counter Belt	1	
186 (6)		VMA4278	P.C.Board Set Angle	1	
187 (6)		VMA4273	P.C.Board Angle	1	
188 (6)		VES0135	Power Switch Unit	1	
189 (6)		VMA4283	Timer P.C.Board Set Angle	1	
190 (7)		VEJ0208	Antenna Terminal Unit	1	
191 (7)		VHN0017	Clip	2	
192 (7)		VYK0240	Preset VR Case Unit	1	
193 (7)		VMZ0311	VR Protection Seet	1	
194 (7)		VMA4282	Key Board Angle	1	
195 (7)		BGT0181	Select Button	8	
196 (7)		VGQ0192-2	Channel Key Board Case	1	
197 (7)		VJR3	Clamper	3	
198 (7)		VGQ0191	Timer Holder	1	
199 (7)		VEP1112A	IF.Tuner P.C.Board Unit	1	
200 (7)		VHD0046	Screw	1	
201 (8)		VYK0264	Preset Cover Unit	1	(B)
201 (8)		VYK0236	Preset Cover Unit	1	(E) (EG) (EV)
202 (8)		VYP0492	Top Panel Unit	1	
203 (8)		VSC0497	Shild Case	1	
204 (8)		VHD0055	Screw	2	
205 (8)		VGP0404	Cassette Cover	1	
206 (8)		VGU0214	Eject Button	1	
207 (8)		VMB0752	Eject Spring	1	
208 (8)		VMA4295	Slide Lever	1	
209 (8)		VMA4297	Eject Guide	1	
210 (8)		VMA4296	Eject Stopper	1	
211 (8)		VYP0508	Front Panel Unit	1	
212 (8)		VMB0738	Button Spring	2	
214 (8)		VMA4272	Button Holder	1	
215 (8)		VGU0215	Power Button	2	
216 (8)		VKU0161	Bottom Plate	1	
217 (8)		VHD0059	Screw	6	
218 (4)		VHD0052	Screw	1	
219 (9)		VJA0130	DIN RF Cable	1	
221 (9)		VPN0645	Accessory Case	1	
221 (9)		VPN0644	Left Top Cushion	1	
222 (9)		VPN0643	Right Top Cushion	1	
223 (9)		VPN0642	Left Bottom Cushion	1	
224 (9)		VPN0642	Right Bottom Cushion	1	
225 (9)		VQF0621	Fan Bag	1	E, EV Type
225 (9)		VQF0620	Fan Bag	1	EG Type
225 (9)		VQF0589	Fan Bag	1	B Type
226 (9)		VPF0144	Polythylene Bag	1	
227 (9)		VPG0867	Packing Case	1	E Type
227 (9)		VPG0865	Packing Case	1	EG Type
227 (9)		VPG0866	Packing Case	1	EV Type

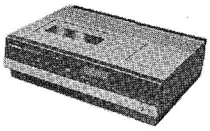
Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
227 (9)		VPG0868	Packing Case	1	B Type
250 (1)		XYN2+C4FXS		2	
251 (1)		XYN3+C4FXS		2	
252 (2)(5)		XYN3+F5FXS		3	
253 (2)		XYN3+C6		1	
254 (4)(5)		XYN3+F6S		6	
255 (6)		XYN3+C6S		7	
256 (5)		XYN3+F8RS		4	
257 (1)(5)		XYN3+F8FXS		3	
258 (5)(7)		XYN3+F8S		4	
258 (3)		XYN3+C8S		1	
259 (4)		XYN3+8FXS		1	
260 (1)		XYN3+F10FXS		5	
261 (2)		XYN3+B10BNS		1	
262 (2)		XYN3+C10FXS		3	
263 (5)		XYV3+5FS		5	
264 (5)(6)		XTV3+6F		3	
265 (5)(2)(4)		XTV3+6FFXS		3	
266 (6)		XTV3+8FR		12	
267 (1)(2)(3)		XTV3+8FFXS		25	
(4)(5)					
268 (6)		XTV3+8J		2	
269 (2)(8)		XTV3+8F		3	
270 (8)		XTV3+8G		4	
271 (1)(6)		XTV3+8FS		2	
272 (6)(7)(8)		XTV3+10G		20	
273 (6)(7)		XTV3+10GR		3	
274 (6)		XTV3+10JK		2	
275 (3)		XTV3+10F		1	
276 (4)		XTV3+12FFXS		1	
277 (6)		XTV3+14G		2	
278 (6)		XTV3+14GR		1	
279 (3)		XTV3+18FFXS		1	
280 (6)		XTV4+6F		2	
281 (6)		XTV4+15A		4	
282 (5)		XTV4+35A		2	
283 (5)		XYN4+C25S		1	
284 (5)		XSN3+8S		1	
285 (2)		XSN3+8FXS		1	
286 (1)		XSN3+10FXS		1	
287 (4)		XSH3+10FXS		1	
288 (1)		XSS26+6FXS		1	
289 (2)		WYE3+BF8FX		1	
290 (1)		XXE3A6		1	
291 (1)		XXE202FP		1	
292 (8)		XTW3+8LR		4	
293 (8)		XSB4+10FX		2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			WASHER		
301 (2)(3)		XUEV3FP		20	
(4)(5)					
302 (1)(2)(4)		XUEV4FP		14	
303 (5)		XUC15FP		1	
304 (2)(5)(4)		XUC25FP		9	
305 (2)(3)		XWXV3D		20	
(4)(5)					
306 (5)		XWXV2D		2	
307 (1)(4)(5)		XWXV4D9		11	
308 (2)		XWXV4F9		2	
309 (4)		XWXV4D11		2	
310 (4)		XWXV4D65		1	
311 (3)		XWXV35D		1	
312 (4)		XWA3		1	
313 (2)(4)		XWC3BF		2	
314 (1)		XNG3B		1	
315 (4)		XNG3C		1	
316 (1)		XNG4		1	
317 (1)		XWG4FX		1	
318 (5)		XUEV2FP		1	
319 (5)(6)		XUC3FP		9	

ELECTRICAL REPLACEMENT PARTS LIST

Model No. NV-2000E, B, EG, EV

Notes:
1. * Be sure to make your orders of replacement parts according to this list.
   * "Ⓝ" in Remarks column indicates new parts.
2. *IMPORTANT SAFETY NOTICE*
   Components identified by ⚠ have special characteristics important for safety.
   When replacing any of these components, use only the original ones.
3. Unless otherwise specified,
   All resistors are in OHMS (Ω), 1/8W ±5% carbon. K=1,000Ω, M=1,000KΩ.
   All capacitors are in MICROFARADS (μF), ±10% P=μμF.



Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
		VEP0190A	Power Supply P. C. Board	1	
		VEP02115A	System Control, Servo Control	1	
			Section P. C. Board		
		VEP03107A	Video, Colour, Audio Section	1	
			P. C. Board		
		VEP07104A/B	Timer P. C. Board	1	
		VEP07107A	Timer Backup P. C. Board	1	
		VEP0757F	Demodulator P. C. Board	1	(NV-2000E,EG,EV)
		VEP0757G		1	(NV-2000B)
		VEP0758A/B	Tuner P. C. Board	1	
		VEP0798A	*Channel Key-Board P. C. Board*	1	
		VEP0799A/B	Pre-set Volume P. C. Board	1	
		VEP00652A	Front Operation P. C. Board	1	
		VJB00518	Mode Selector P. C. Board	1	
		VJB00519	Sensor Lamp P. C. Board	1	
		VJB00520	Take-up Photo Transistor	1	
			P. C. Board		
		VJB00521	Supply Photo Transistor	1	
			P. C. Board		
		VJB00524	*A/C Head P. C. Board*	1	
		VJB00623	Dew Sensor P. C. Board	1	
		VJB00633	Reel Sensor P. C. Board	1	
		VJB00653	Pin Jack P. C. Board	1	
		VJB00656	Timer LED P. C. Board	1	
			POWER SUPPLY P. C. BOARD		
			Transistors		
Q1001,1002		2SD767		2	
Q1003		2SC1318A		1	
Q1004		2SD767		1	
Q1005		2SD636		1	
Q1006-1008		2SD762		3	
			Diodes		
D1001-1004		10EI		4	⚠
D1005,1006		MA165		2	
D1007-1009		10EI		3	⚠
D1010		10E2		1	⚠
D1011		10E1		1	⚠
D1012		QA106		1	
D1013		MA165		1	
D1014		RD18EB		1	
D1015		*RD11EB*		1	
D1016,1017		MA26TO		2	
D1018		MA165		1	
D1019,1020		RD13EB		2	
			Resistors		
R1001		ERD10TJ562	5.6K	1	
R1002		ERD10TJ563	56K	1	
R1003		ERD10TJ223	22K	1	
R1004		ERD10TJ222	2.2K	1	
R1005		ERD10TJ332	3.3K	1	
R1006		ERD10TJ472	4.7K	1	
R1007		ERD10TJ333	33K	1	
R1008		ERQ14AJ120	1/4W 12	1	⚠
R1009		ERD10TJ102	1K	1	
R1010		ERD10TJ222	2.2K	1	
R1011		ERD25TG3902	1/4W 39K	1	
R1012		ERD25TG6801	1/4W 6.8K	1	
R1013		ERD10TJ332	3.3K	1	
R1014		ERD10TJ222	2.2K	1	
R1015		ERD50TJ153	1/4W 15K	1	
R1016		ERD10TJ104	100K	1	
R1017		ERD10TJ223	22K	1	
R1018		ERD10TJ103	10K	1	
R1019		ERD14AJ151	1/4W 150	1	⚠
R1020		ERQ1ANJ3R3H	1 W 3.3	1	⚠
R1021		ERQ14AJ120	1/4W 12	1	⚠
R1022		ERD10TJ153	15K	1	
R1023		ERD10TJ821	820	1	
R1024		ERQ14AJ3123	1/4W 3.3	1	⚠
			Capacitors		
C1001		ECEA1ES332	Electrolytic 25V 3300	1	
C1002		ECEA1ES222	Electrolytic 25V 2200	1	
C1003		ECEA50ZR33	Electrolytic 50V 0.33	1	
C1004		ECEA1CS101	Electrolytic 16V 100	1	
C1005		*ECKD1H103*	*Ceramic* 50V 0.01	1	
C1006		ECEA1HS101	Electrolytic 50V 100	1	
C1007		ECEA2AS101	Electrolytic 100V 100	1	
C1008		ECEA15S3R3	Electrolytic 63V 3.3	1	
C1009		ECEA1VS102	Electrolytic 35V 1000	1	
C1010		ECEA1ES221	Electrolytic 25V 220	1	
			Connectors		
P003		VJP1148	2P	1	
P1002		VJP1151	6P	1	
P1003,1004		VJP1150	5P	2	
P1005		VJP1149	3P	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			SYSTEM CONTROL, SERVO		
			CONTROL SECTION P. C. BOARD		
			Servo Control Section		
			Integrated Circuits		
IC2001		AN6350		1	
IC2002		AN6677		1	
IC2003		M54819L		1	
IC2004		PD4027C		1	
IC2005		AN6341N		1	
			Transistors		
Q2001		2SC2021		1	
Q2002,2003		2SD889		2	
Q2004,2005		2SC2021		2	
Q2006		2SB641		1	
Q2007-2012		2SC2021		6	
Q2013		2SD889		1	
Q2014		2SC2021		1	
Q2015		2SC1826		1	
Q2016		2SB641		1	
Q2017		2SC2021		1	
			Diodes		
D2001-2009		ISS133T		9	
			Resistors		
R2001		ERD10TJ104	100K	1	
R2002		ERD10TJ562	5.6K	1	
R2003		ERD10TJ223	22K	1	
R2004		ERD10TJ822	8.2K	1	
R2005		ERD10TG2433	243K	1	
R2006		EVNK6AA00B15	Variable 100K	1	
R2007		ERD10TJ334	330K	1	
R2008		ERD10TJ822	8.2K	1	
R2009		ERD10TJ124	120K	1	
R2010		ERD25TJ105	1/4W 1M	1	
R2011		EVNK6AA00B25	Variable 200K	1	
R2012		ERD10TJ153	15K	1	
R2013		EVNK6AA00B25	Variable 200K	1	
R2014		ERD10TJ153	15K	1	
R2015		EVNK6AA00B15	Variable 100K	1	
R2016		ERD10TJ333	33K	1	
R2017		ERD10TJ103	10K	1	
R2018		ERD10TJ153	15K	1	
R2019		ERD10TJ683	68K	1	
R2020		EVNK6AA00B54	50K	1	
R2021		ERD25TJ105	1/4W 1M	1	
R2022		ERD10TJ823	82K	1	
R2023		ERD10TJ103	10K	1	
R2024		ERD10TJ332	3.3K	1	
R2025		ERD10TJ184	180K	1	
R2026		ERD10TJ472	4.7K	1	
R2027		ERD10TJ152	1.5K	1	
R2028		ERD10TJ273	27K	1	
R2029		ERD10TJ561	560	1	
R2030		ERD10TJ153	15K	1	
R2031		ERD10TJ561	560	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R2032		ERD10TJ332	3.3K	1	
R2033		ERD10TJ333	33K	1	
R2034		ERD25TJ105	1/4W 1M	1	
R2035		ERD10TJ473	47K	1	
R2036		ERD10TJ104	100K	1	
R2037		ERD10TJ152	1.5K	1	
R2038		ERD10TJ123	12K	1	
R2039		ERD25TJ225	2.2M	1	
R2040		ERX12ANJR47	12W 0.47	1	
R2041-2043		ERD10TJ220	22	3	
R2044		ERD10TJ823	82K	1	
R2045		ERD10TJ332	3.3K	1	
R2046		ERD10TJ153	15K	1	
R2047		ERD10TJ332	3.3K	1	
R2048		ERD10TJ104	100K	1	
R2049		ERD10TJ224	220K	1	
R2050		ERD10TJ104	100K	1	
R2051		ERD10TJ224	220K	1	
R2052		ERD10TJ104	100K	1	
R2053		ERD10TJ333	33K	1	
R2054		ERD10TJ224	220K	1	
R2055		ERD10TJ101	100	1	
R2056		ERD10TJ823	82K	1	
R2057		EVNK6AA00B15	Variable 100K	1	
R2058		ERD10TJ103	10K	1	
R2059		ERD10TJ333	33K	1	
R2060		ERD10TJ153	15K	1	
R2061		ERD10TJ393	39K	1	
R2062		ERD10TJ104	100K	1	
R2063		ERD10TJ333	33K	1	
R2064		ERD10TJ104	100K	1	
R2065		ERD10TJ124	120K	1	
R2066		ERD10TJ333	33K	1	
R2067		ERD10TJ102	1K	1	
R2068		ERD10TJ682	6.8K	1	
R2069		ERC14GK155	14W 1.5M	1	
R2070		EVNK6AA00B24	Variable 20K	1	
R2071		ERD10TJ563	56K	1	
R2072		ERD10TJ822	8.2K	1	
R2073		ERC14GK395	1/4W 3.9M	1	
R2074		ERD10TJ822	8.2K	1	
R2075		ERD10TJ472	4.7K	1	
R2076		ERD25TG2701	1/4W 2.7K	1	
R2077		ERD10TJ223	22K	1	
R2078		ERD10TJ562	5.6K	1	
R2079		ERD10TJ104	100K	1	
R2080		ERD10TJ562	5.6K	1	
R2081		ERD10TJ123	12K	1	
R2082		ERD10TJ102	1K	1	
R2083		ERD10TJ153	15K	1	
R2084		ERD10TJ154	150K	1	
R2085		ERD10TJ473	47K	1	
R2086		EVNK6AA00B54	Variable 50K	1	
R2087		ERD10TJ102	1K	1	
R2088		ERD10TJ104	100K	1	
R2089		ERD10TJ332	3.3K	1	
R2090		ERQ14AJ390	1/4W 39	1	⚠
R2091		ERD10TJ101	100	1	
R2092		ERD10TJ333	33K	1	
R2093		ERD10TJ822	8.2K	1	
R2094		ERQ1AJ6R8	1W 6.8	1	⚠

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Capacitors		
C2001		ECQM1H472KZ	Mylar 50V 0.0047	1	
C2002		ECEA1HS010	Electrolytic 50V 1	1	
C2003		ECKR1H103ZF	Electrolytic 50V 0.01	1	
C2004		ECQV05104JZ	Mylar 50V 0.1	1	
C2005		ECQM1H273JZ	Mylar 50V 0.027	1	
C2006		ECEA50ZR33	Electrolytic 50V 0.33	1	
C2007,2008		ECEA1HS010	Electrolytic 50V 1	2	
C2009,2010		ECQM1H183KZ	Mylar 50V 0.018	2	
C2011		ECQM1H273JZ	Mylar 50V 0.027	1	
C2012		ECQV05104JZ	Mylar 50V 0.1	1	
C2013		ECQM1H473KZ	Mylar 50V 0.047	1	
C2014		ECEA1AS101	Electrolytic 10V 100	1	
C2015		ECEA1CS100	Electrolytic 16V 10	1	
C2016		ECQM1H472KZ	Mylar 50V 0.0047	1	
C2017		ECEA50ZR68	Electrolytic 50V 0.68	1	
C2018		ECKD1H103ZF	Ceramic 50V 0.01	1	
C2019		ECEA1HS010	Electrolytic 50V 1	1	
C2020		ECEA1CS101	Electrolytic 16V 100	1	
C2021		ECEA50ZR22	Electrolytic 50V 0.22	1	
C2022		ECCD1H331K	Ceramic 50V 330P	1	
C2023		ECEA1AS470	Electrolytic 10V 47	1	
C2024		ECEA1CS220	Electrolytic 16V 22	1	
C2025,2026		ECQV05104JZ	Mylar 50V 0.1	2	
C2027		ECKD1H682KB	Ceramic 50V 0.0068	1	
C2028		ECQV05184JZ	Mylar 50V 0.18	1	
C2029		ECEA1CS101	Electrolytic 16V 100	1	
C2030		ECQM1H103KZ	Mylar 50V 0.01	1	
C2031		ECQM1H333KZ	Mylar 50V 0.033	1	
C2032		ECEA1HS3R3	Electrolytic 50V 3.3	1	
C2033-2035		ECEA1HN2R2	Electrolytic 50V 2.2	3	
C2036		ECEA1HS2R2	Electrolytic 50V 2.2	1	
C2037-2039		ECEA50ZR22	Electrolytic 50V 0.22	3	
C2040		ECQM1H822KZ	Mylar 50V 0.0082	1	
C2041		ECQM1H223KZ	Mylar 50V 0.022	1	
C2042		ECEA1HS010	Electrolytic 50V 1	1	
C2043		ECEA50ZR1	Electrolytic 50V 0.1	1	
C2044		ECQM1H823KZ	Mylar 50V 0.082	1	
C2045		ECEA1HS010	Electrolytic 50V 1	1	
C2046		ECQV05334JZ	Mylar 50V 0.33	1	
C2047,2048		ECQV05104JZ	Mylar 50V 0.1	2	
C2049,2050		ECQV05184JZ	Mylar 50V 0.18	2	
C2051		ECQM1H103KZ	Mylar 50V 0.01	1	
C2052		ECEA1AS470	Electrolytic 10V 47	1	
C2053		ECEA1CS100	Electrolytic 16V 10	1	
C2054		ECKD1H103ZF	Ceramic 50V 0.01	1	
C2055		ECQV05154JZ	Mylar 50V 0.15	1	
C2056		ECEA1AS221	Electrolytic 10V 220	1	
C2057		ECKD1H103ZF	Ceramic 50V 0.01	1	
C2058		ECQM1H222KZ	Ceramic 50V 0.0022	1	
C2059		ECEA1CS330	Electrolytic 16V 33	1	
C2060		ECEA1CS100	Electrolytic 16V 10	1	
			Coil		
L2001		VLQ80W102K		1	
			Connectors		
P001		VJP1147	12P	1	
P2001		VJP1142	3P	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
P2005		VJP1144	6P	1	
P2010		VJP1143	5P	1	
P2013		VJP1142	3P	1	
RY2001		VSY2026	Relay	1	
			SYSTEM CONTROL, SERVO		
			CONTROL SECTION P. C. BOARD		
			System Control Section		
			Integrated Circuits		
IC6001		MN1405VQ		1	
IC6002-6004		PD4503BC		3	
			Transistors		
Q6001-6006		2SC2021		6	
Q6007		2SB641		2	
Q6008,6009		2SC2021		2	
Q6010		2SB641		2	
Q6011		2SD1051		1	
Q6012		2SC2001		1	
Q6013-6015		2SC2021		3	
Q6016		2SD973		1	
Q6017,6018		2SB793		2	
Q6019		2SD973		1	
Q6020		2SC2021		1	
Q6021		2SC1826		1	
Q6022		2SD889		1	
Q6023-6025		2SC2021		3	
Q6026		2SD973		1	
Q6027		2SB641		1	
Q6028-6033		2SC2021		6	
Q6034		2SB641		1	
Q6035,6036		2SC2021		2	
Q6037		2SB643		1	
Q6038		2SB641		1	
Q6039		2SC2021		1	
Q6040		2SB643		1	
Q6041		2SC2021		1	
Q6042		2SB643		1	
Q6043		2SA719		1	
Q6044		2SC2021		1	
Q6045		2SC2021		1	
			Diodes		
D6001-6006		ISS133T		6	
D6007		RD5.6JB		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
D6008		ISS133T		1	
D6009		RD5.6JB		1	
D6010-6014		ISS133T		5	
D6015		RD9.1EB2		1	
D6016-6021		ISS133T		6	
D6022		OA90G		1	
D6023		RD5.6JB		1	
D6024-6027		ISS133T		4	
D6029,6030		ISS133T		2	
D6032		RD11JB		1	
D6033-6045		ISS133T		13	
			Resistors		
R6001,6002		ERD10TJ223	22K	2	
R6003		ERD10TJ822	8.2K	1	
R6004-6006		ERD10TJ223	22K	3	
R6007		ERD10TJ103	10K	1	
R6008		ERD10TJ822	8.2K	1	
R6009,6010		ERD10TJ473	47K	2	
R6011		ERD10TJ562	5.6K	1	
R6012		ERD10TJ473	47K	1	
R6013		ERD10TJ124	120K	1	
R6014		ERD10TJ104	100K	1	
R6015		ERD10TJ333	33K	1	
R6016		ERD10TJ473	47K	1	
R6017		ERD10TJ823	82K	1	
R6018		ERD10TJ103	10K	1	
R6019		ERD10TJ183	18K	1	
R6020		ERD10TJ822	8.2K	1	
R6021		ERD10TJ154	150K	1	
R6022,6023		ERD10TJ333	33K	2	
R6024		ERD10TJ153	15K	1	
R6025		ERD10TJ103	10K	1	
R6026		ERD10TJ392	3.9K	1	
R6027		ERD10TJ103	10K	1	
R6028		ERD10TJ822	8.2K	1	
R6029		ERD10TJ154	150K	1	
R6030		ERD10TJ333	33K	1	
R6031		ERD10TJ153	15K	1	
R6032		ERD10TJ333	33K	1	
R6033-6036		ERD10TJ103	10K	4	
R6037		ERD10TJ472	4.7K	1	
R6038		ERD2FCG680	2W 68	1	⚠
R6039,6040		ERD10TJ682	6.8K	2	
R6041		ERD10TJ332	3.3K	1	
R6042		EVNK6AA00B14	Variable 10K	1	
R6043,6044		ERD10TJ103	10K	2	
R6045		ERD10TJ153	15K	1	
R6046		ERD10TJ823	82K	1	
R6047		ERD10TJ562	5.6K	1	
R6048		ERD10TJ223	22K	1	
R6049		ERD10TJ332	3.3K	1	
R6050		ERD25TJ471	1/4W 470	1	
R6051		ERD10TJ102	1K	1	
R6052		ERD10TJ332	3.3K	1	
R6053		ERD25TJ471	1/4W 470	1	
R6054		ERD10TJ223	22K	1	
R6055		ERD10TJ102	1K	1	
R6056		ERD10TJ473	47K	1	
R6057		ERD25TG6801	1/4W 6.8K	1	
R6058		ERD25TG3901	1/4W 3.9K	1	
R6059		ERD10TJ102	1K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R6060		ERD10TJ223	22K	1	
R6061		ERD10TJ823	82K	1	
R6062		ERD10TJ473	47K	1	
R6063		ERD10TJ393	39K	1	
R6064		ERD10TJ273	27K	1	
R6065		ERD10TJ183	18K	1	
R6066		ERD10TJ563	56K	1	
R6067		ERD10TJ153	15K	1	
R6068		ERD10TJ103	10K	1	
R6069		ERD10TJ104	100K	1	
R6070		ERD10TJ154	150K	1	
R6071		ERD10TJ104	100K	1	
R6072,6073		ERD10TJ103	10K	2	
R6074		ERD10TJ224	220K	1	
R6075		ERD10TJ332	3.3K	1	
R6076		ERD10TJ103	10K	1	
R6077		ERD10TJ393	39K	1	
R6079		ERD10TJ103	10K	1	
R6080		ERD10TJ223	22K	1	
R6081		ERD10TJ124	120K	1	
R6082		ERD10TJ124	120K	1	
R6083		ERD10TJ223	23K	1	
R6084		ERD10TJ103	10K	1	
R6085		ERD10TJ103	10K	1	
R6087		ERD10TJ223	22K	1	
R6088		ERD10TJ333	33K	1	
R6089		ERD10TJ223	22K	1	
R6090		ERD10TJ473	47K	1	
R6091		ERD10TJ473	47K	1	
R6092		ERD10TJ472	4.2K	1	
R6093		ERD10TJ473	47K	1	
R6094		ERD10TJ333	33K	1	
R6095		ERD10TJ273	27K	1	
R6096		ERD10TJ223	22K	1	
R6097		ERD10TJ223	22K	1	
R6098		ERD10TJ103	10K	1	
R6099		ERD10TJ223	22K	1	
R6100		ERD10TJ473	47K	1	
R6101		ERD10TJ223	22K	1	
R6102		ERD10TJ473	47K	1	
R6103		ERD10TJ103	10K	1	
R6104		ERD10TJ392	3.9K	1	
R6105		ERD10TJ103	10K	1	
R6106		ERD10TJ472	4.7K	1	
R6107		ERD10TJ223	22K	1	
R6108		ERD10TJ473	47K	1	
R6109		ERD10TJ472	4.7K	1	
R6110		ERD10TJ121	120	1	
R6111		ERD10TJ102	1K	1	
R6112		ERD10TJ103	10K	1	
R6113		ERD10TJ471	470	1	
R6114		ERD10TJ103	10K	1	
R6115		ERD10TJ473	47K	1	
R6116		ERD10TJ472	4.7K	1	
R6117		ERD10TJ473	47K	1	
R6119		ERD10TJ473	47K	1	
R6120		ERD10TJ473	47K	1	
R6121		ERD10TJ102	1K	1	
R6122		ERD10TJ223	22K	1	
R6123		ERD10TJ223	22K	1	
R6124		ERD10TJ473	47K	1	
R6125		ERD10TJ121	120	1	
R6126		ERD10TJ393	39K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Capacitors		
C6001		ECEA1ES4R7B	Electrolytic 25V 4.7	1	
C6002		ECKD1H103ZF	Ceramic 50V 0.01	1	
C6003		ECEA1AS101	Electrolytic 10V 100	1	
C6004		ECCD1H101K	Ceramic 50V 100P	1	
C6005		ECEA0JS470	Electrolytic 6.3V 47	1	
C6007-6012		ECKD1H103ZF	Ceramic 50V 0.01	6	
C6013		ECKD1H561KB	Ceramic 50V 560P	1	
C6014		ECEA1CS221	Electrolytic 16V 220	1	
C6015		ECEA1CS220	Electrolytic 16V 22	1	
C6016		ECEA1ES4R7	Electrolytic 25V 4.7	1	
C6017-6019		ECKD1H103ZF	Ceramic 50V 0.01	3	
C6020		ECEA1HSR47	Electrolytic 50V 0.47	1	
C6021		ECEA1CS100	Electrolytic 16V 10	1	
C6022,6023		ECQV05124JZ	Mylar 50V 0.12	2	
C6024		ECEA1CS220	Electrolytic 16V 22	1	
			Connectors		
P6001		VJP1141	2P	1	
P6002		VJP1142	3P	1	
P6003		VJP1141	2P	1	
P6004		VJP1143	5P	1	
P6007		VJP1144	6P	1	
P6008		VJP1142	3P	1	
P6009		VJP1147	12P	1	
P6010		VJP1142	3P	1	
P6011		VJP1141	2P	1	
P6012		VJP1142	3P	1	
P6019		VJP1141	2P	1	
			VIDEO, COLOUR, AUDIO		
			SECTION P. C. BOARD		
			Video Section		
			Integrated Circuits		
IC3001		AN6310		1	
IC3002		AN6320N		1	
IC3003		AN304		1	
IC3004		AN6332		1	
IC3005		μPD4069C		1	
			Transistors		
Q3001		2SB641		1	
Q3002,3003		2SD636		2	
Q3004		2SC2377		1	
Q3005		2SC2206		1	
Q3006		2SB641		1	
Q3007-3009		2SD638		3	
Q3010		2SC2206		1	
Q3011		2SC2377		1	
Q3012		2SC2206		1	
Q3013		2SB641		1	
Q3014,3015		2SC2206		2	
Q3016		2SB641		1	
Q3017		2SC2206		1	
Q3018-3020		2SD636		3	
Q3021		2SC2206		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Diodes		
D3001,3002		ISS16		2	
D3003-3005		MA165		3	
D3007,3008		MA165		2	
			Resistors		
R3001		ERD10TJ221	220	1	
R3002		ERD10TJ820	82	1	
R3003		ERD10TJ102	1K	1	
R3004		ERD10TJ122	1.2K	1	
R3005		ERD10TJ332	3.3K	1	
R3006		ERD25TJ684	1/4W 680K	1	
R3007		EVNK6AA00B24	Variable 20K	1	
R3008		ERD10TJ123	12K	1	
R3009		EVNK6AA00B53	Variable 5K	1	
R3010		ERD10TJ272	2.7K	1	
R3011		ERD10TJ332	3.3K	1	
R3012		ERD10TJ152	1.5K	1	
R3013		ERD10TJ561	560	1	
R3014		ERD10TJ102	1K	1	
R3015		ERD10TJ271	270	1	
R3016		ERD10TJ222	2.2K	1	
R3017		ERD10TJ332	3.3K	1	
R3018		ERD10TJ562	5.6K	1	
R3019-3020		EVNK6AA00B53	Variable 5K	2	
R3021		ERD10TJ562	5.6K	1	
R3022		EVNK6AA00B23	Variable 2K	1	
R3023		ERD10TJ561	560	1	
R3024		ERD10TJ124	120K	1	
R3025		ERD10TJ473	47K	1	
R3026		ERD10TJ820	82	1	
R3027		ERD10TJ471	470	1	
R3028		ERD10TJ562	5.6K	1	
R3029		ERD10TJ122	1.2K	1	
R3030		ERD10TJ152	1.5K	1	
R3031		ERD10TJ122	1.2K	1	
R3032		ERD10TJ221	220	1	
R3033		ERD10TJ560	56	1	
R3034,3035		ERD10TJ682	6.8K	2	
R3036,3037		ERD10TJ560	56	2	
R3038		ERD10TJ152	1.5K	1	
R3039		ERD10TJ100	10	1	
R3040		ERD10TJ332	3.3K	1	
R3041		ERD10TJ100	10	1	
R3042		ERD10TJ332	3.3K	1	
R3043		ERD10TJ223	22K	1	
R3044		ERD10TJ473	47K	1	
R3046		ERD10TJ391	390	1	
R3047		ERD10TJ473	47K	1	
R3049		ERD10TJ391	390	1	
R3050,3051		ERD10TJ822	8.2K	2	
R3052		ERD10TJ102	1K	1	
R3054		EVNK6AA00B53	Variable 5K	1	
R3055		ERD10TJ472	4.7K	1	
R3056		ERD10TJ272	2.7K	1	
R3057,3058		ERD10TJ561	560	2	
R3059		ERD10TJ681	680	1	
R3060		ERD10TJ102	1K	1	
R3061		ERD10TJ391	390	1	
R3062		ERD10TJ680	68	1	
R3063-3065		ERD10TJ102	1K	3	
R3066		ERD10TJ153	15K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R3067		EVNK6AA00B24	Variable 20K	1	
R3068,3069		ERD10TJ153	15K	2	
R3070,3071		ERD10TJ391	390	2	
R3072		ERD10TJ392	3.9K	1	
R3073		ERD10TJ822	8.2K	1	
R3074,3075		ERD10TJ102	1K	2	
R3076		ERD10TJ561	560	1	
R3077		ERD10TJ472	4.7K	1	
R3078		ERD10TJ331	330	1	
R3079		ERD10TJ562	5.6K	1	
R3080		ERD10TJ182	1.8K	1	
R3081		ERD10TJ222	2.2K	1	
R3082		ERD10TJ102	1K	1	
R3083		ERD10TJ270	27	1	
R3084		EVNK6AA00B15	Variable 100K	1	
R3085		ERD10TJ473	47K	1	
R3086		ERD10TJ821	820	1	
R3087		ERD10TJ221	220	1	
R3088		ERD10TJ561	560	1	
R3089		ERD10TJ102	1K	1	
R3090		ERD10TJ682	6.8K	1	
R3091		ERD10TJ102	1K	1	
R3092		ERD10TJ221	220	1	
R3093		ERD10TJ102	1K	1	
R3094		ERD10TJ472	4.7K	1	
R3095		EVNK6AA00B13	Variable 1K	1	
R3096		ERD10TJ271	270	1	
R3097		ERD10TJ152	1.5K	1	
R3098		ERD10TJ222	2.2K	1	
R3100		ERD10TJ822	8.2K	1	
R3101		ERD10TJ222	2.2K	1	
R3102		ERD10TJ272	1K	1	
R3103		ERD10TJ391	390	1	
R3104		ERD10TJ222	2.2K	1	
R3105		ERD10TJ151	150	1	
R3106		ERD10TJ182	1.8K	1	
R3107		ERD10TJ473	47K	1	
R3108		ERD10TJ393	39K	1	
R3109		ERD10TJ223	22K	1	
R3110		ERD10TJ183	18K	1	
R3111		ERD10TJ332	3.3K	1	
R3112		ERD10TJ562	5.6K	1	
R3113		ERD10TJ102	1K	1	
R3114		ERD10TJ274	270K	1	
R3115		ERD10TJ222	2.2K	1	
R3116		ERD10TJ101	100	1	
R3117		ERD25TJ271	270	1	
R3118		ERD10TJ102	1K	1	
R3119		ERD10TJ222	2.2K	1	
R3120		ERD10TJ102	1K	1	
R3121		ERD10TJ471	470	1	
R3122		ERD10T750	75	1	
R3123		ERD10TJ821	820	1	
R3124		ERD10TJ123	12K	1	
R3125		ERD10TJ472	4.7K	1	
R3126		ERD10TJ683	68K	1	
R3127		EVNK6AA00B24	Variable 20K	1	
R3128		ERD25TJ125	1/4W 1.2MK	1	
R3129		ERD10TJ682	6.8K	1	
R3130		ERD10TJ682	6.8K	1	
R3131		ERD10TJ273	27K	1	
R3132		ERD10TJ333	33K	1	
R3133		ERD10TJ222	2.2K	1	
R3134		ERD10TJ152	1K	1	
R3135		ERD10TJ102	1K	1	
R3136		ERD10TJ272	2.7K	1	
R3137		ERD10TJ392	3.9K	1	
R3138,3139		ERD10TJ102	1K	2	
R3206,3207		EVNK6AA00B13	Variable 1K	2	
R3208		EVNK6AA00B23	Variable 2K	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Capacitors		
C3001		ECEA0JS470	Electrolytic 6.3V 47	1	
C3002		ECEA1CS100	Electrolytic 16V 10	1	
C3003		ECEA0JS470	Electrolytic 6.3V 47	1	
C3004		ECQM1H103KX	Mylar 50V 0.01	1	
C3005		ECQM1H333KZ	Mylar 50V 0.033	1	
C3006		ECEA0JS221	Electrolytic 6.3V 220	1	
C3007		ECEA1ES4R7	Electrolytic 25V 4.7	1	
C3008		ECEA0JS221	Electrolytic 6.3V 220	1	
C3009		ECEA10N22	Electrolytic 10V 200	1	
C3010		ECEA1AS221	Electrolytic 10V 220	1	
C3011		ECEA6N47	Electrolytic 6.3V 47	1	
C3012		ECEA1AS470	Electrolytic 10V 47	1	
C3013		ECCD1H151K	Ceramic 50V 150P	1	
C3014		ECCD1H820KC	Ceramic 50V 82P	1	
C3015		ECCD1H470KC	Ceramic 50V 47P	1	
C3016		ECV1ZW50X44	Trimmer 1W 50P	1	
C3017		VCKD1H621JS	Ceramic 50V 620	1	
C3018		ECCD1H470KC	Ceramic 50V 47P	1	
C3019		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3020		ECEA1AS470	Electrolytic 10V 47	1	
C3021		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3022		ECEA0JS470	Electrolytic 6.3V 47	1	
C3023		ECEA1AS470	Electrolytic 10V 47	1	
C3024		ECCD1H820KC	Ceramic 50V 82P	1	
C3025		ECCD1H181K	Ceramic 50V 180P	1	
C3026		ECCD1H331KB	Ceramic 50V 330P	1	
C3027		ECEA1CS100	Electrolytic 16V 10	1	
C3028-3030		ECKD1H103ZF	Ceramic 50V 0.01	3	
C3031		ECQV05104JZ	Mylar 50V 0.1	1	
C3032		ECEA1CS100	Electrolytic 16V 10	1	
C3033		ECEA1CS100	Electrolytic 16V 10	1	
C3034		ECEA1HS010	Electrolytic 50V 1	1	
C3035,3036		ECKD1H103ZF	Ceramic 50V 0.01	2	
C3037,3038		ECV1ZW50X44	Trimmer 1W 50P	2	
C3039		ECEA1HS010	Electrolytic 50V 1	1	
C3040		ECEA1CS100	Electrolytic 16V 10	1	
C3041		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3042		ECCD1H470K	Ceramic 50V 47P	1	
C3043		ECkD1H103ZF	Ceramic 50V 0.01	1	
C3044		ECCD1H470K	Ceramic 50V 47P	1	
C3045		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3046		ECCD1H150KC	Ceramic 50V 15P	1	
C3047		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3048		ECEA1AS470	Electrolytic 10V 47	1	
C3049		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3050		ECCD1H151K	Ceramic 50V 150P	1	
C3051		ECKD1H271JS	Ceramic 50V 270P	1	
C3052		VCKD1H431JS	Ceramic 50V 430P	1	
C3053		ECKD1H391KB	Ceramic 50V 390P	1	
C3054		ECEA0JS470	Electrolytic 6.3V 47	1	
C3055		ECCD1H101KC	Ceramic 50V 100P	1	
C3056		ECKD1H182KB	Ceramic 50V 0.0018	1	
C3057,3058		ECKD1H103ZF	Ceramic 50V 0.01	2	
C3059		ECCD1H220KC	Ceramic 50V 22P	1	
C3060,3061		ECCD1H270KC	Ceramic 50V 27P	2	
C3062		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3063		ECCD1H220KC	Ceramic 50V 22P	1	
C3064		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3065		ECEA1AS470	Electrolytic 10V 47	1	
C3066,3067		ECKD1H103ZF	Ceramic 50V 0.01	2	
C3068		ECKD1H472KB	Ceramic 50V 0.0047	1	
C3069,3070		ECKD1H103ZF	Ceramic 50V 0.01	2	
C3071		ECCD1H470KC	Ceramic 50V 47P	1	
C3072		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3073,3074		ECCD1H270KC	Ceramic 50V 27P	2	
C3075		ECEA1AS330	Electrolytic 10V 33	1	
C3076		VCY25473KX	Semiconductor 25V 0.047	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
C3077		ECCD1H560K	Ceramic 50V 56P	1	
C3078		ECCD1H180JC	Ceramic 50V 18P	1	
C3079		VCKD1H821JS	Ceramic 50V 820P	1	
C3081		ECEA0JS470	Electrolytic 6.3V 47	1	
C3082		ECEA1CS100	Electrolytic 16V 10	1	
C3083		ECEA1AS101	Electrolytic 10V 100	1	
C3084		ECCD1H680J	Ceramic 50V 62P	1	
C3085		ECCD1H270KC	Ceramic 50V 27P	1	
C3086		ECCD1H220K	Ceramic 50V 22P	1	
C3087		ECEA1CS100	Electrolytic 16V 10	1	
C3088		ECEA1AS470	Electrolytic 10V 47	1	
C3089		ECEA0JS470	Electrolytic 6.3V 47	1	
C3090		VCY25473KX	Semiconductor 25V 0.047	1	
C3091		ECEA1HS010	Electrolytic 50V 1	1	
C3092		ECEA1CS100	Electrolytic 16V 10	1	
C3093		ECEA0JS471	Electrolytic 6.3V 470	1	
C3094		ECKD1H102ZF	Ceramic 50V 0.001	1	
C3095		ECCD1H181KG	Ceramic 50V 180P	1	
C3096		ECQM1H822KZ	Mylar 50V 0.0082	1	
C3097		ECKD1H561KB	Ceramic 50V 560P	1	
C3098		ECCD1H221KC	Ceramic 50V 220P	1	
C3099		ECKD1H561KB	Ceramic 50V 560P	1	
C3100		ECEA1CS100	Electrolytic 16V 10	1	
C3102		ECKD1H121KB	Ceramic 50V 120P	1	
C3103		ECCD1H330K	Ceramic 50V 33P	1	
C3104		ECCD1H390KC	Ceramic 50V 39P	1	
C3105		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3106		ECCD1H390KC	Ceramic 50V 39P	1	
C3107		ECEA0JS470	Electrolytic 6.3V 47	1	
C3108		ECCD1H101R	Ceramic 50V 100P	1	
C3109		ECKD1H103ZF	Ceramic 50V 0.01	1	
C3110		ECQM1H562KZ	Mylar 50V 0.0056	1	
			Coils		
L3001		VLQEL06F101	100 μH	1	
L3002,3003		VLQ80W221	220 μH	2	
L3004		VLQEL06F820	82 μH	1	
L3005		VLQEL06F151	150 μH	1	
L3006		VLQEL06F270	27 μH	1	
L3007		VLQ80W221	220 μH	1	
L3008,3009		VLQEL06F3R3	3.3 μH	2	
L3010		VLQEL06F100	10 μH	1	
L3011		VLQEL06F180	18 μH	1	
L3012		VLQEL06F2R7	2.7 μH	1	
L3013		VLQEL06F151	150 μH	1	
L3014		VLQ80W221	220 μH	1	
L3015,3016		VLQEL06F471	470 μH	2	
L3017,3018		VLQEL06F100	10 μH	2	
L3019,3020		VLQ80W221	220 μH	2	
L3021		VLQEL06F1R2	1.2 μH	1	
L3022		VLQEL06F181	180 μH	1	
L3023,3024		VLQ80W221	220 μH	2	
L3025		VLQEL06F101	100 μH	1	
L3026		VLQ80W102	1mH	1	
L3027,3028		VLQEL06F220	22 μH	2	
L3029		VLQEL06F391	390 μH	1	
L3030		VLQEL06F180	180 μH	1	
			Connectors		
P3001		VJP1142	*3P*	1	
P3002		VJP1144	6P	1	
P3003-3006		VJP1143	5P	4	
			Filters		
FL3001,3002		VLF0112		2	
FL3003		VLF0115		1	
FL3004		VLF0083		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Delay Line		
DL3001		*VLD0012*	*1H*	1	
			Switch		
S3001		*VSS0052*		1	
			VIDEO, COLOUR, AUDIO		
			SECTION P. C. BOARD		
			Audio Section		
			Integrated Circuit		
IC4001		AN262		1	
			Diodes		
D4001-4005		MA165		5	
			Transistors		
Q4001,4002		*2SD958*		2	
Q4003		2SB788		1	
Q4004		2SD661		1	
Q4005,4006		2SD636		2	
Q4007,4008		*2SC2001*		2	
Q4009		2SD636		1	
Q4010		2SB641		1	
Q4011		2SD1317		1	
			Resistors		
R4001		ERD10TJ332	3.3K	1	
R4002		ERD10TJ821	820	1	
R4003		ERD10TJ562	5.6K	1	
R4004		*ERD10TJ333*	*33K*	1	
R4005		ERD10TJ102	1K	1	
R4006		ERD10TJ332	3.3K	1	
R4007,4008		ERD10TJ333	33K	2	
R4009		ERD10TJ103	10K	1	
R4010		*ERD10TJ181*	*180*	1	
R4011		ERD10TJ332	3.3K	1	
R4012		ERD10TJ683	68K	1	
R4013		EVNK6AA00B53	5K	1	
R4014		ERD10TJ223	22K	1	
R4015		*ERD10TJ472*	4.7K	1	
R4016		ERD10TJ223	22K	1	
R4017		ERD10TJ332	3.3K	1	
R4018		ERD10TJ183	18K	1	
R4019		ERD10TJ104	100K	1	
R4020		*ERD10TJ102*	1K	1	
R4021		ERD10TJ183	18K	1	
R4022		ERD10TJ333	33K	1	
R4023		ERD10TJ824	820K	1	
R4024		ERD10TJ470	47	1	
R4025		ERD10TJ222	2.2K	1	
R4026		ERD10TJ103	10K	1	
R4027		ERD10TJ562	5.6K	1	
R4028		ERD10TJ105	1MK	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
R4029		ERD10TJ332	3.3K	1	
R4031		ERD10TJ102	1K	1	
R4032		ERD10TJ473	47K	1	
R4033		ERD10TJ122	1.2K	1	
R4034		ERD10TJ102	1K	1	
R4035		ERD10TJ183	18K	1	
R4036		ERD10TJ332	3.3K	1	
R4037,4038		ERD10TJ223	22K	2	
R4039		ERD10TJ332	3.3K	1	
R4040,4041		ERD10TJ103	10K	2	
R4042		ERD10TJ333	33K	1	
R4043		ERD10TJ821	820	1	
R4044		ERD10TJ4R7	4.7	1	
R4045		ERD10TJ101	100	1	
R4046		ERD10TJ123	12K	1	
R4047		ERD10TJ102	1K	1	
R4100		EVJLEA312B15	Variable 100K	1	
			Capacitors		
C4001		ECEA1AS101	Electrolytic 10V 100	1	
C4002		ECEA1CN100	Electrolytic 16V 10	1	
C4003		ECKD1H681KB	Ceramic 50V 680P	1	
C4004		ECEA0JS330	Electrolytic 6.3V 33	1	
C4005		ECQM1H333KZ	Mylar 50V 0.033	1	
C4006-4008		ECEA1CS100	Electrolytic 16V 10	3	
C4009		ECEA1HS010	Electrolytic 50V 1	1	
C4010		ECEA50ZR22	Electrolytic 50V 0.22	1	
C4011,4012		ECEA1CS100	Electrolytic 16V 10	2	
C4013		ECEA0JS101	Electrolytic 6.3V 100	1	
C4014		ECQV05104JZ	Mylar 50V 0.1	1	
C4015		ECEA1CS100	Electrolytic 16V 10	1	
C4016		ECEA1HS010	Electrolytic 50V 1	1	
C4017		ECQM1H332KZ	Mylar 50V 0.0033	1	
C4018		ECCD1H181K	Ceramic 50V 180P	1	
C4019		ECEA50ZR33	Electrolytic 50V 0.33	1	
C4020-4025		ECEA1CS100	Electrolytic 16V 10	6	
C4026		ECEA1AS470	Electrolytic 10V 47	1	
C4027		VCV0001	Trimmer 40P	1	
C4028		ECQF6222	Mylar 630V 0.0022	1	
C4029		ECQM1H822KZ	Mylar 50V 0.0082	1	
C4030		ECQM1H682KZ	Mylar 50V 0.0068	1	
C4031		ECQM1H472KZ	Mylar 50V 0.0047	1	
C4032		ECQM1H153KZ	Mylar 50V 0.015	1	
			Coils		
L4001		VLQ7H222	2.2mH	1	
L4002		VLQ80W102	1mH	1	
			Connectors		
P4003		VJP1141	2P	1	
P4017		VJP1141	2P	1	
P4018		VJP1143	5P	1	
			Transformer		
T4001		VLT0052		1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			VIDEO, COLOUR, AUDIO		
			SECTION P. C. BOARD		
			Colour Section		
			Integrated Circuits		
IC8001		AN6360		1	
IC8002		AN6362		1	
IC8003		AN6371		1	
IC8004		AN6551		1	
IC8005		AN6342N		1	
			Transistors		
Q8001		2SD636		1	
Q8002		2SC2206B		1	(NV-2000EG)
Q8003		2SD636		1	(NV-2000EG)
Q8004		2SB641		1	
Q8005		2SC2206		1	
Q8006		2SC2206		1	(NV-2000EG)
Q8007		2SC2206		1	
Q8008,8009		2SC2206B		2	(NV-2000EG)
Q8010,8011		2SD636		2	
Q8012-8015		2SC2206B		4	
			Diodes		
D8001-8004		MA165		4	(NV-2000EG)
D8005-8007		MA165		3	
D8008		MA165		1	(NV-2000EG)
D8009-8012		MA165		4	
D8013		MA165		1	(NV-2000EG)
D8014		MA165		1	
D8015		MA27W		1	
D8016		MA165		1	(NV-2000EG)
			Resistors		
R8001		ERD10TJ563	56K	1	
R8002		ERD10TJ103	10K	1	
R8003		ERD10TJ102	1K	1	
R8004		ERD10TJ181	180	1	
R8005		ERD10TJ122	1.2K	1	
R8006		ERD10TJ821	820	1	
R8007		ERD10TJ101	100	1	
R8008		ERD10TJ122	1.2K	1	
R8009		ERD10TJ822	8.2K	1	(NV-2000EG)
R8010		ERD10TJ272	2.7K	1	(NV-2000EG)
R8011		ERD10TJ181	180	1	(NV-2000EG)
R8012		ERD25TJ684	1/4W 680K	1	
R8013		ERD10TJ222	2.2K	1	
R8014,8015		ERD10TJ562	5.6K	2	
R8016		ERD10TJ222	2.2K	1	
R8017		ERD25TJ471	470	1	
R8018		EVNK6AA00B52	Variable 500	1	
R8019		ERD10TJ102	1K	1	(NV-2000EG)
R8020		ERD10TJ103	10K	1	(NV-2000EG)
R8021		ERD10TJ122	1.2K	1	
R8022		ERD10TJ392	3.9K	1	
R8023,8024		ERD10TJ103	10K	2	
R8025		ERD10TJ332	3.3K	1	
R8026		ERD10TJ562	5.6K	1	

Ref. No.		Part No.	Part Name & Description			Pcs / Set	Remarks
R8027		ERD10TJ102			1K	1	
R8028,8029		ERD10TJ472			4.7K	2	
R8030		ERD10TJ182			1.8K	1	
R8031		ERD10TJ224			220K	1	
R8032		ERD10TJ273			27K	1	
R8033,8034		ERD10TJ102			1K	2	
R8035		ERD10TJ274			270K	1	
R8036		ERD10TJ392			3.9K	1	
R8037		ERD10TJ182			1.8K	1	
R8038,8039		ERD10TJ222			2.2K	2	
R8040		ERD25TJ274		1/4W	270K	1	
R8041		ERD10TJ473			47K	1	
R8042		ERD10TJ102			1K	1	
R8043		ERD10TJ122			1.2K	1	
R8044		ERD10TJ102			1K	1	
R8045		ERD10TJ122			1.2K	1	
R8046,8047		ERD10TJ102			1K	2	
R8048,8049		EVNK6AA00B23	Variable		2K	2	
R8050		ERD10TJ822			8.2K	1	(NV-2000EG)
R8051		ERD10TJ272			2.7K	1	(NV-2000EG)
R8052		ERD10TJ391			390	1	
R8053		EVNK6AA00B14	Variable		10K	1	
R8054-8057		ERD10TJ391			390	4	
R8058		ERD10TJ273			27K	1	
R8059		ERD10TJ562			5.6K	1	
R8060		ERD10TJ102			1K	1	
R8061		ERD10TJ331			330	1	
R8062,8063		ERD10TJ104			100K	2	
R8064		ERD10TJ333			33K	1	
R8065		ERD10TJ472			4.7K	1	
R8066		ERD10TJ562			5.6K	1	
R8067		ERD10TJ152			1.5K	1	
R8068		ERD10TJ391			390	1	
R8069		ERD10TJ222			2.2K	1	
R8070,8071		ERD10TJ563			56K	2	
R8072		ERD10TJ272			2.7K	1	
R8073		ERD10TJ561			560	1	
R8074		ERD10TJ820			82	1	
R8075		ERD10TJ332			3.3K	1	
R8076		ERD10TJ102			1K	1	
R8077		ERD25TJ564		1/4W	560K	1	
R8078		EVNK6AA00B54	Variable		50K	1	
R8079		ERD10TJ333			33K	1	
R8080		ERD10TJ153			15K	1	
R8081		ERD10TJ273			27K	1	(NV-2000EG)
R8082		ERD10TJ103			10K	1	(NV-2000EG)
R8083		ERD10TJ102			1K	1	(NV-2000EG)
R8084		ERD10TJ271			270	1	(NV-2000EG)
R8085		ERD10TJ680			68	1	(NV-2000EG)
R8086,8087		ERD10TJ102			1K	2	(NV-2000EG)
R8088		ERD10TJ273			27K	1	(NV-2000EG)
R8089		ERD10TJ682			6.8K	1	(NV-2000EG)
R8090		ERD10TJ471			470	1	(NV-2000EG)
R8091		ERD10TJ271			270	1	(NV-2000EG)
R8092		ERD10TJ152			1.5K	1	(NV-2000EG)
R8093		ERD10TJ273			27K	1	(NV-2000EG)
R8094		ERD10TJ222			2.2K	1	(NV-2000EG)
R8095		ERD10TJ331			330	1	(NV-2000EG)
R8096		ERD10TJ223			22K	1	(NV-2000EG)
R8097		ERD10TJ103			10K	1	(NV-2000EG)
R8098		ERD10TJ104			100K	1	(NV-2000EG)
R8099		EVNK6AA00B24	Variable		20K	1	(NV-2000EG)
R8100		ERD10TJ332			3.3K	1	
R8101,8102		ERD10TJ102			1K	2	
R8103		ERD10TJ681			680	1	(NV-2000EG)
R8104		ERD10TJ101			100	1	
			Capacitors				
C8001		ECKD1H103ZF	Ceramic	50V	0.01	1	
C8002		ECEA1CS100	Electrolytic	16V	10	1	

Ref. No.		Part No.	Part Name & Description			Pcs / Set	Remarks
C8003		ECQM1H102K	Mylar	50V	0.001	1	(NV-2000EG)
C8004-8006		ECkD1H103ZF	Ceramic	50V	0.01	3	
C8007		ECEA1HS010	Electrolytic	50V	1	1	
C8008		ECEA1CS470	Electrolytic	16V	47	1	
C8009,8010		ECKD1H103ZF	Ceramic	50V	0.01	2	
C8011		ECEA1HS010	Electrolytic	50V	1	1	
C8012		VCY25122KX	Semiconductor	25V	0.0012	1	
C8013		ECKD1H561KB	Ceramic	50V	560P	1	
C8015		VCKD1H102JS	Ceramic	50V	0.001	1	
C8016		ECQM1H183KZ	Mylar	50V	0.018	1	
C8017		ECEA1CS100	Electrolytic	16V	10	1	
C8018		ECCD1H121KC	Ceramic	50V	120P	1	
C8019		ECCD1H181KC	Ceramic	50V	180P	1	
C8020		ECKD1H821KB	Ceramic	50V	820P	1	
C8021		ECCD1H221K	Ceramic	50V	220P	1	
C8022		ECKD1H103ZF	Ceramic	50V	0.01	1	
C8023		ECEA1HS010	Electrolytic	50V	1	1	
C8024,8025		ECEA1CS330	Electrolytic	16V	33	1	
C8026		VCY25472KX	Semiconductor	25V	0.0047	1	
C8027		ECEA1HS010	Electrolytic	50V	1	1	
C8028		ECQV05104JZ	Mylar	50V	0.1	1	
C8029		ECQM1H563KZ	Mylar	50V	0.056	1	
C8030		ECKD1H103ZF	Ceramic	50V	0.01	1	
C8031		ECQM1H333KZ	Mylar	50V	0.033	1	
C8032		ECEA1CS100	Electrolytic	16V	10	1	
C8033		ECKD1H103ZF	Ceramic	50V	0.01	1	
C8034		ECV1ZW50X44	Trimmer	1W	50P	1	
C8035		ECCD1H040D	Ceramic	50V	4P	1	
C8036		ECCD1H060F	Ceramic	50V	6P	1	
C8037		ECEA1CS330	Electrolytic	16V	33	1	
C8038		ECCD1H101K	Ceramic	50V	100P	1	
C8039		ECCD1H150K	Ceramic	50V	15P	1	
C8040,8041		ECKD1H103ZF	Ceramic	50V	0.01	2	
C8042		ECEA1HS2R2	Electrolytic	50V	2.2	1	
C8043-8046		ECKD1H103ZF	Ceramic	50V	0.01	4	
C8047		ECEA1CS100	Electrolytic	16V	10	1	
C8048-8050		ECKD1H103ZF	Ceramic	50V	0.01	3	
C8051		ECCD1H390K	Ceramic	50V	39P	1	
C8052-8054		ECKD1H103ZF	Ceramic	50V	0.01	3	
C8055		ECCD1H151KC	Ceramic	50V	150P	1	
C8056		ECCD1H101KC	Ceramic	50V	100P	1	
C8057		ECCD1H150K	Ceramic	50V	15P	1	
C8058		ECV1ZW20X44	Trimmer	1W	20P	1	
C8059		ECKD1H103ZF	Ceramic	50V	0.01	1	
C8060,8061		ECEA1CS100	Electrolytic	16V	10	2	
C8062		ECKD1H471KB	Ceramic	50V	470P	1	
C8063		ECCD1H560K	Ceramic	50V	56P	1	
C8064		ECKD1H103ZF	Ceramic	50V	0.01	1	
C8065		ECCD1H560	Ceramic	50V	56P	1	
C8066		ECKD1H331KB	Ceramic	50V	330P	1	
C8067		ECKD1H103ZF	Ceramic	50V	0.01	1	
C8068,8069		ECEA1HS010	Electrolytic	50V	1	2	
C8070		ECKD1H102ZF	Ceramic	50V	0.001	1	(NV-2000EG)
C8071		ECEA1CS100	Electrolytic	16V	10	1	(NV-2000EG)
C8074		ECQM1H153KZ	Mylar	50V	0.015	1	(NV-2000EG)
C8075		ECKD1H102ZF	Ceramic	50V	0.001	1	(NV-2000EG)
C8076		ECCD1H100F	Ceramic	50V	10P	1	(NV-2000EG)
C8077		ECKD1H102ZF	Ceramic	50V	0.001	1	(NV-2000EG)
C8078		ECQM1H103J	Mylar	50V	0.01	1	(NV-2000EG)
C8079		ECKD1H102ZF	Ceramic	50V	0.001	1	(NV-2000EG)
C8080		ECEA16Z47B	Electrolytic	16V	47	1	(NV-2000EG)
C8081		ECQM1H563J	Mylar	50V	0.056	1	(NV-2000EG)
C8082		ECQM1H562J	Mylar	50V	0.0056	1	(NV-2000EG)
C8083		ECKD1H103ZF	Ceramic	50V	0.01	1	(NV-2000EG)
C8084		ECEA1CS100	Electrolytic	16V	10	1	(NV-2000EG)
C8085		ECEA1HS010	Electrolytic	50V	1	1	(NV-2000EG)
C8086		ECKD1H102ZF	Ceramic	50V	0.001	1	
			Filters				
FL8001		VLF0085				1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
FL8002		VLF0113		1	
FL8003		VLF0090		1	
FL8004		VLF0094		1	
FL8005		VLF0095		1	
FL8006		EFCS4R5MS3C		1	(NV-2000EG)
			Coils		
L8001		VLQ80W221	220μH	1	
L8002		VLQ02F682	6.8mH	1	
L8003,8004		VLQ80W221	220μH	2	
L8005		VLQEL06F470	47μH	1	
L8006		VLQEL06F560	56μH	1	
L8007		VLQ80W221	220μH	1	
L8008		VLQEL06F330	33μH	1	
L8009,8010		VLQEL06F6R8	6.8μH	2	
L8011,8012		VLQ80W221	220μH	2	
L8013		VLQEL06F2R7	2.7μH	1	
L8014		VLQEL06F3R9	3.9μH	1	
L8015		VLQ80F221	220μH	1	(NV-2000EG)
L8017		VLQ02F682	6.8mH	1	(NV-2000EG)
L8018		VLQ80W221	220μH	1	
			Oscillators		
X8001		VSX0066	Crystal	1	
X8002		VSX0069	Crystal	1	
			Thermister		
TH8001		ERTD2FHL102S		1	
			Delay Line		
DL8001		VLD0026		1	
			Miscellaneous		
		VGT0170	Tracking Knob	1	
		VJH0127	Front Jack Unit	1	
		VSC0493	Shield Case	1	
		VSC0494	Shield Case	1	
		VSY0002		1	
		WA5001		1	
P002		VJP1144	Connector 6P	1	
			TIMER P. C. BOARD		
			Integrated Circuit		
IC7501		MN1435VX		1	
			Transistors		
Q7501,7502		2SC945A		2	
Q7503,7504		2SB642		2	
Q7505,7506		2SC945A		2	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Diodes		
D7501-7503		MA165		3	
D7504		RD5.6JB		1	
D7505		RD7.5EB		1	
D7506		RD12JB		1	
D7507-7513		MA165		7	
			Resistors		
R7501		ERD25TJ392	1/4W 3.9K	1	
R7502		ERD25TJ153	1/4W 15K	1	
R7503		ERD25TJ563	1/4W 56K	1	
R7504		ERD25TJ473	1/4W 47K	1	
R7505		ERD25TJ153	1/4W 15K	1	
R7506		ERD25TJ104	1/4W 100K	1	
R7507		EVMH1GA00B15	Variable 100K	1	
R7508,7509		ERD25TJ223	1/4W 22K	2	
R7510,7511		ERD25TJ104	1/4W 100K	2	
R7512		ERD25TJ683	1/4W 68K	1	
R7513		ERD25TJ223	1/4W 22K	1	
R7514		ERD25TJ103	1/4W 10K	1	
R7515		ERD25TJ223	1/4W 22K	1	
R7516,7517		ERD25TJ103	1/4W 10K	2	
R7518		ERD25TJ102	1/4W 1K	1	
			Capacitors		
C7502		ECEA1CS100	Electrolytic 16V 10	1	
C7503		ECKD1H103ZF5	Ceramic 50V 0.01	1	
C7504,7505		ECKD1H102KB	Ceramic 50V 0.001	2	
C7506		ECCD1H101JC2	Ceramic 50V 100P	1	
C7507		ECkD1H103ZF	Ceramic 50V 0.01	1	
			Switches		
SW7501		ESD14145A		1	
SW7502		VST0048		1	
SW7503-7506		EVQPXR04K		4	
			Connectors		
P7501		VJP1150	5P	1	
P7502		VJP1149	3P	1	
P7503		VJP1148	2P	1	
			Complex Component		
RX7501		EXBP810473		1	
RX7502		EXBP87473		1	
			Crystal		
X7501		VCR0031		1	
DP7501		VSL0005		1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
		TIMER BACKUP P. C. BOARD		
		Capacitors		
C7510	ECEB1ES472	Electrolytic 25V 4700	1	
		DEMODULATOR P. C. BOARD		
		Integrated Circuits		
IC701	BN5111B		1	
IC702	AN240P		1	
IC7001	AN5701N		1	
IC7002	AN5703		1	(NV-2000B)
		Transistors		
Q701-703	2SC945A		3	
Q704	2SA733		1	
		Diodes		
D701	MA165		1	
D702	MA26TO		1	(NV-2000B)
D703,704	MA165		2	(NV-2000B)
D7010	MA165		1	
D7012	MA161		1	
D7013	µPC574JK		1	
		Resistors		
R701	ERD10TJ821	820	1	
R702	ERD10TJ151	150	1	
R703	ERD10TJ102	1K	1	(NV-2000E,EG,EV)
R703	ERD10TJ222	2.2K	1	(NV-2000B)
R704	ERD10TJ563	56K	1	
R706	EVNK6AA00B23	Variable 2K	1	
R707,708	ERD10TJ102	1K	2	
R709	ERD10TJ272	2.7K	1	
R709	ERD10TJ222	2.2K	1	(NV-2000B)
R710	ERD10TJ101	100	1	
R711	ERD10TJ152	1.5K	1	
R712	ERD10TJ153	15K	1	
R713	ERD10TJ821	820	1	
R714	ERD10TJ333	33K	1	
R716	ERD25TJ125	1/4W 1200K	1	
R717	ERD10TJ102	1K	1	
R718	EVNK6AA00B14	Variable 10K	1	
R719	ERD10TJ562	5.6K	1	
R720	ERD10TJ183	18K	1	
R721	ERD10TJ680	68	1	
R721	ERD10TJ221	220	1	(NV-2000B)
R724	ERD10TJ470	47	1	
R725,726	ERD10TJ103	10K	2	
R728	ERD10TJ222	2.2K	1	(NV-2000E,EG,EV)
R730	*ERQ12HJ220*	*1W 22*	*1*	
R731	EVNK6AA00B24	Variable 20K	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
R732	ERD10TJ822	8.2K	1	
R733	ERD10TJ222	2.2K	1	
R734	ERD10TJ333	33K	1	(NV-2000E,EG,EV)
R735	ERD10TJ332	3.3K	1	
R736	ERD10TJ391	390	1	
R737	ERD10TJ683	68K	1	
R738	ERD10TJ822	8.2K	1	(NV-2000E,EG,EV)
R738	ERD10TJ392	3.9K	1	(NV-2000B)
R741	EVNK6AA00B24	Variable 20K	1	(NV-2000E,EG,EV)
R745	ERD10TJ222	2.2K	1	
R746	ERD10TJ101	100	1	
R748	ERD10TJ221	220	1	
R749	ERD10TJ333	33K	1	
R750	ERD10TJ103	10K	1	(NV-2000B)
R754	ERD10TJ332	3.3K	1	
R755	ERD25TJ561	1/4W 560	1	(NV-2000B)
R7015	ERD10TJ103	10K	1	
R7020	ERG2ANJ102	2W 1K	1	
R7026	*ERD25FJ121*	*1/4W 120*	*1*	
R7026	ERD25FJ151	1/4W 150	1	(NV-2000B)
R7027	ERD10TG1102	11K	1	(NV-2000E,EG,EV)
R7028	ERD10TJ103	10K	1	(NV-2000E,EG,EV)
R7029	ERD10TJ104	100K	1	(NV-2000E,EG,EV)
R7030	ERD10TJ273	27K	1	(NV-2000E,EG,EV)
		Capacitors		
C704-709	ECKD1H103ZF	Ceramic 50V 0.01	6	
C710	ECCD1H020CC	Ceramic 50V 2P	1	
C711	ECCD1H680JR	Ceramic 50V 68P	1	
C712	ECCD1H220JC	Ceramic 50V 22P	1	
C713	ECCD1H020CC	Ceramic 50V 2P	1	
C714	ECCD1H560KP	Ceramic 50V 56P	1	
C715	ECEA1HS010	Electrolytic 50V 1	1	
C716	ECEA1ES3R3	Electrolytic 25V 3.3	1	
C717	ECKD1H103ZF	Ceramic 50V 0.01	1	
C718	ECQM1H823KZ	Mylar 50V 0.082	1	
C719	ECEA1CS100	Electrolytic 16V 10	1	
C720	ECKD1H102KB	Ceramic 50V 0.001	1	
C721	ECEA50ZR33	Electrolytic 50V 0.33	1	
C722	ECEA1HS2R2	Electrolytic 50V 2.2	1	
C723	*ECSZ25EF1*	*Electrolytic 25V 1*	1	
C724	ECKD1H103ZF	Ceramic 50V 0.01	1	
C725	ECEA1CS100	Electrolytic 16V 10	1	
C726	ECEA1EN3R3	Electrolytic 25V 3.3	1	
C727	ECCD1H050DC	Ceramic 50V 5P	1	
C728	ECCD1H820JR	Ceramic 50V 82P	1	
C729	ECQM1H473KZ	Mylar 50V 0.047	1	
C730	ECEA1CS100	Electrolytic 16V 10	1	
C731	ECCD1H270JC	Ceramic 50V 27P	1	(NV-2000B)
C733	ECEA1EN4R7	Electrolytic 25V 4.7	1	
C734	ECKD1H103ZF	Ceramic 50V 0.01	1	
C735	ECQM1H153KZ	Mylar 50V 0.015	1	
C736	ECEA1CS471	Electrolytic 16V 470	1	
C737	ECCD1H560JC	Ceramic 50V 56P	1	(NV-2000E,EG,EV)
C737	ECCD1H470JC	Ceramic 50V 47P	1	(NV-2000B)
C738	ECKD1H103ZF	Ceramic 50V 0.01	1	
C739	ECEA1CS100	Electrolytic 16V 10	1	
C740	ECEA1HN010	Electrolytic 50V 1	1	
C752,753	ECCD1H220KC	Ceramic 50V 22P	2	(EN Type)
C755	*ECKD1H561KB*	*Ceramic 50V 560P*	*1*	
C756	ECCD1H151KC	Ceramic 50V 150P	1	
C757	ECCD1H150JC	Ceramic 50V 15P	1	
C758	ECCD1H820JR	Ceramic 50V 82P	1	(NV-2000E,EG,EV)
C7003	ECKD1H222ZF	Ceramic 50V 0.0022	1	
C7005	ECKD1H103ZF	Ceramic 50V 0.01	1	
C7006	ECEA1HS010	Electrolytic 50V 1	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
		Coils		
L701	ELQSR82KB		1	
L703	VLQ80W270K	27 μH	1	
L704	VLQ80W680K	68 μH	1	
L705	VLQ80W560K	56 μH	1	
L706	VLQ80W390J	39 μH	1	
L707	VLQ80W220J	22 μH	1	(NV-2000E,EG,EV)
L707	VLQ80W180J	180 μH	1	(NV-2000B)
L708	VLQ80W150K	15 μH	1	
L710	VLQ80W220K	22 μH	1	
L711	VLQ80W181K	180 μH	1	(NV-2000E,EG,EV)
		Transformers		
T701	EULHLB473		1	(NV-2000E,EG,EV)
	EULHLB471		1	(NV-2000B)
T702	EIM5A721		1	
T703	EIV10E309A		1	
T704	EIV10E309B		1	
T705	EIS10E312A		1	
		Filters		
FL701	EFCS5R5MS3		1	(NV-2000E,EG,EV)
FL701	EFCS6R0MS3		1	(NV-2000B)
FL702	EFCS5R5MW3		1	(NV-2000E,EG,EV)
FL702	EFCS6R0MW3		1	(NV-2000B)
FL703	EFCA5R5MC3C		1	(NV-2000E,EG,EV)
FL703	EFCA6R0MC3C		1	(NV-2000B)
		Connectors		
P701	VJJ0020		1	
P702	VJP1142	3P	1	
P704,705	VJP1143	5P	2	
P710	VJP1142	3P	1	
		Miscellaneous		
	VSC0478	Sheild Case	1	
	VSC0479	Sheild Case	1	
	VSC0480	Sheild Case	1	
		TUNER P. C. BOARD		
		Capacitors		
C701	ECEA1ES4R7	Electrolytic 25V 4.7	1	(NV-2000B)
C702	ECKD1H222ZF	Ceramic 50V 0.0022	1	
C703	ECKD1H103ZF	Ceramic 50V 0.01	1	(NV-2000B)
C743	ECEA1HSR47	Electrolytic 50V 0.47	1	
C744	ECKD1H103ZF	Ceramic 50V 0.01	1	(NV-2000E,EG,EV)
C745	ECEA1ES4R7	Electrolytic 25V 4.7	1	(NV-2000E,EG,EV)
C746-749	ECKD1H103ZF	Ceramic 50V 0.01	4	(NV-2000E,EG,EV)
C750	ECEA1ES220	Electrolytic 25V 22	1	

Ref. No.	Part No.	Part Name & Description	Pcs / Set	Remarks
		Miscellaneous		
	TNV77701F2R	Tuner	1	(NV-2000E,EG,EV)
	ENV87509F2	Tuner	1	(NV-2000B)
		CHANNEL KEY-BOARD		
		P. C. BOARD		
		Diodes		
D7201-7208	LN31GCP		8	
D7209-7216	MA161		8	
		PRE-SET VOLUME P. C. BOARD		
		Transistors		
Q7301	2SA733		1	
Q7302	2SC945A		1	
		Diodes		
D7301-7308	MA161		8	
D7309	MA165		1	
		Resistors		
R7301-7308	EWEU2A016B24	Variable 20K	8	
R7309	ERD25TJ681	1/4W 680	1	
R7310	ERD25TJ101	1/4W 100	1	
R7311	ERD25TJ104	1/4W 100K	1	
R7312-7313	ERD25TJ153	1/4W 15K	2	
R7314	ERD25TJ103	1/4W 10K	1	
R7315	ERD25TJ683	1/4W 68K	1	
R7316	ERD25TJ682	1/4W 6.8K	1	
		Capacitor		
C7301	ECEA1HK010	Electrolytic 50V 1	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
			Switches		
SW7301-7308		VSS0050		8	(NV-7000E,EG,EV)
SW7309		ESE153A		1	
			FRONT OPERATION P. C. BOARD		
			Transistors		
Q6201-6202		2SB641		2	
Q6203,6205		2SD636		2	
Q6206		2SB641		1	
Q6207-6208		2SD636		2	
Q6209		2SB641		1	
			Diodes		
D6201-6205		MA165		5	
D6206		LN41YCPHL		1	
D6207-6209		LN21RCPHL		3	
			Resistors		
R6201-6210		ERD10TJ223	22K	10	
R6211		ERD10TJ474	470K	1	
R6212		ERD10TJ183	18K	1	
R6213		ERD10TJ102	1K	1	
R6214		ERD10TJ121	120	1	
R6215		ERD10TJ221	220	1	
R6216-6217		ERD10TJ223	22K	2	
R6218		ERD10TJ561	560	1	
R6219		ERD10TJ223	22K	1	
R6220		ERD10TJ392	3.9K	1	
R6221,6222		ERD10TJ561	560	2	
R6223,6224		ERD10TJ223	22K	2	
			Capacitor		
C6201		ECKD1H103ZF	Ceramic 50V 0.01	1	
			Switches		
S6201-6207		EVQPXR04	Key Switch	7	
			Connectors		
P6201		VJP1147	12P	1	
P6202		VJP1142	3P	1	
			RF CONVERTER UNIT		
			Transistor		
Q1		2SC1215R		1	
			Integrated Circuits		
AM-1		PCBA016V	Audio Modulator	1	

Ref. No.		Part No.	Part Name & Description	Pcs / Set	Remarks
VM-1		PCBA195V	Video Modulator	1	
UO-1		UOCA009V	UHF Oscillator	1	
			Diodes		
D1,2		ISS86		2	
D3		RD56EB		1	
D4		MA26W		1	
			Resistors		
R1		ERD10TJ101	100	1	
R2		ERD10TJ470	47	1	
R3		ERD10TJ390	39	1	
R4		ERD10TJ471	470	1	
R5		ERD25TJ101	100	1	
R6		ERD10TJ220	22	1	
R7		ERD10TJ680	68	1	
R8		ERD10TJ471	470	1	
R9		ERD25TJ680	68	1	
R10		ERD10TJ220	22	1	
R11,12		ERD10TJ331	330	2	
VR1		9PNXB13	Variable 1KB	1	
VR2		EVN38CA00B13	Variable 1KB	1	
VR3		9PNXB15	Variable 100KB	1	
VR4		EVMG5GS05B15	Variable 100KB	1	
			Capacitors		
C1		ECCD1H050C	Ceramic 50V 5P	1	
C2		ECCD1H150KC	Ceramic 50V 15P	1	
C3		ECCD1H020CC	Ceramic 50V 2P	1	
C4		ECEA1AS470B	Electrolytic 6V 47	1	
C5		ECKD1H102PF	Ceramic 50V 1000P	1	
C6		VCY25473M1	Semiconductor 47n	1	
C7		ECCD1H330KT	Ceramic 50V 33P	1	
C8		ECKD1H102PF	Ceramic 50V 1000P	1	
C9		ECEA1HS010	Electrolytic 50V 1	1	
C10		ECKD1H103PF	Ceramic 50V 10n	1	
C11		VCY25473M1	Semiconductor 47n	1	
C12,13		ECCD1H050C	Ceramic 50V 5P	2	
C14		ECCD1H271K1	Ceramic 50V 270P	1	
C15		ECCD1H390KC	Ceramic 50V 39P	1	
C16		ECCD1H330KT	Ceramic 50V 33P	1	
C17		ECEA1AS470B	Electrolytic 6V 47	1	
C18		VCY25473M1	Semiconductor 47n	1	
C19		ECEA1AS100	Electrolytic 6V 10	1	
C20		ECCD1H221K1	Ceramic 50V 220P	1	
C21		ECV1ZW04X53N	Trimmer	1	
C22		ECEA1HS010	Electrolytic 50V 1	1	
C23		ECV1ZW04X53N	Trimmer	1	
C24		ECKD1H102PF	Ceramic 50V 1000P	1	
C25		ECCD1H101K1	Ceramic 50V 100P	1	
C26		ECCD1H470K1	Ceramic 50V 47P	1	
C27		ECCD1H101K1	Ceramic 50V 100P	1	
C28		ECEA1AS2R2	Electrolytic 6V 2.2	1	
C29		ECEA1AS330	Electrolytic 6V 33	1	
C30		ECEA1CS471	Electrolytic 25V 470	1	
C31		ECCD1H080J1	Ceramic 50V 8P	1	
C32		ECKD1H103PF	Ceramic 50V 10n	1	
C33		ECKD1H102PF	Ceramic 50V 1000P	1	
C34		ECEA1AN330	Electrolytic 6V 33	1	
			Coils		
L1-4		LB162609VU02		4	
L5		*LR3H4R7K*		1	
			Transformers		
T1,2		*VLT0093*	*Oscillation*	2	
T3		BRNA010V		1	
			Connector		
		VJP1143	5 Pin	1	